

# Informatics

## Public Distribution System



- ICT Karnataka Empowering Rural
- Tripura: Focusing on IT Enabled Services
- Cloud Computing in NIC Assam
- Grievance Redressal System in Jhansi



**US President gets Glimpse of Rural India Through VC**

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# Editorial

**P**UBLIC Distribution System in the country facilitates the supply of food grains to the poor at a subsidised price. Essential items such as selected cereals, sugar and kerosene at subsidized prices to holders of ration cards is the objective of efficient Public Distribution System. The PDS also helps to modulate open - market prices for commodities that are distributed through the system. Government accords great importance to the objective of measuring outcomes of PDS so as to ensure that equal distribution system serves up the purpose for which it was set up.

Application of ICT for delivery of public services at various levels in government is common. Get an overview of such initiatives in the States of Karnataka and Tripura in our From the State/UTs section. Districts like Jhansi (Uttar Pradesh), Tirunelveli (Tamil Nadu), Ganjam (Orissa) are also leveraging on the potential of ICT to provide convenient and efficient access to government information & services.

To collect feedback as well as views of our esteemed readers, Feedback Form is enclosed within this issue. Please put forward your valuable views to help us enhance the publication further.

**Wishing You All a Great Year Ahead.**

NEETA VERMA  
Editor-in-Chief

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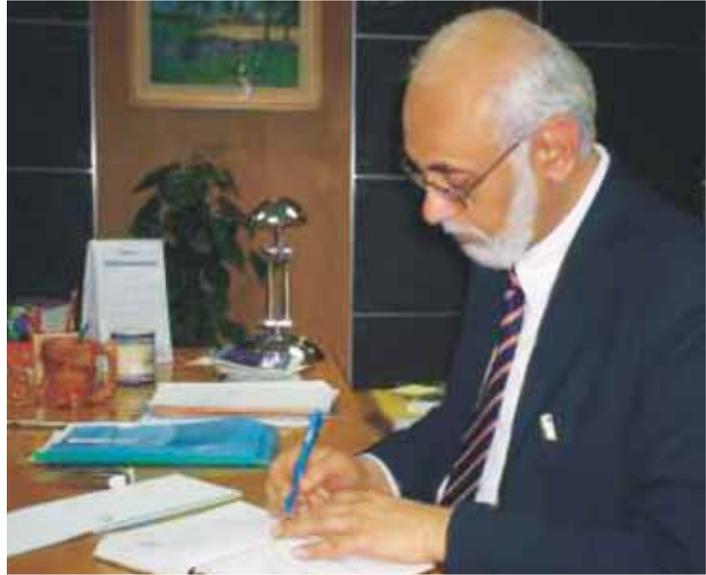
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**G**OVERNMENT information is a valuable national resource. It provides the people with knowledge of the government, society, and economy -- past, present, and future. Publishing information online in an easily accessible form shall significantly enhance the relationship between the government & public. While a lot of initiatives have been taken to publish up-to-date information through government websites & portals, opening government data itself shall lead to development of applications providing value added services around the government data thus harnessing its true value. The combination of geographic, budget, demographic, services, education and other data, publicly available in an open format on the web, promises to improve services as well as facilitate socio-economic development.

With the changing dynamics of Information and Communication Technologies, NIC is constantly striving to cater to the diverse demands of the Government and the public at large. As the Government of India is placing a lot of emphasis to accelerate e-governance in all spheres to ensure Efficiency, Transparency, Accountability & Open Government for the Citizens, NIC's role has become more crucial in implementation of various national/state level initiatives.

In fact, the emerging scenario has changed the expectations of the Government from NIC. Right from developing applications to provision of high level of support in managing the projects through its entire lifecycle, NIC has shown its expertise in all. An important component of such an emerging role of NIC is to support the government in strategic control of the applications and services required to be outsourced to the industry.

I'm sure that as always, NIC will continue to prove its mantle of being a premier ICT organization in the Country, contributing immensely to the growth of ICT sector, not just at the National, State and District level but even up to the Block, Panchayat and Village level.

Wish you all a very Happy and Prosperous New Year 2011.

**Dr . B. K. Gairola**

The primary policy objective of the Department of Food & Public Distribution (DoF&PD) is to ensure food security for the country through timely and efficient procurement and distribution of essential commodities across the country. This involves procurement of various food grains, building up and maintenance of food stocks, their storage, movement and delivery to the distributing agencies and finally distribution to the intended beneficiary.



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# ICT in Public Distribution System

Edited by **Vivek Verma**

**T**ARGETED Public Distribution System (TPDS) has evolved as a system of management of scarcity and for distribution of food grains at affordable prices. TPDS is an important constituent of the strategy for poverty eradication and is intended to serve as a safety net for the accepted number of BPL families.

## KEY COMPONENTS OF THE PDS INCLUDE

**Procurement, Storage and Movement:** Food Corporation of India (FCI) moves the commodities and ensures its availability at various FCI godowns and depots for onward distribution within the state. State Government further lifts the stock as per their requirement for further allotment to Fair Price Shop (FPS) and finally for distribution to beneficiaries.

**Allocation and Utilization reporting:** It is the process of allocating PDS commodities, under various categories such as BPL, AAY & APL, from the Central Government to the FPS via State and district administration. The entitlement for stock lifting is based on the allocation and closing balance. Likewise, consumption reporting starts from the FPS level to DoF&PD through block office, district and state FSD.

**Fair Price Shop Operations:** Sale of commodities to ration card holders is achieved through government approved fair price shops.

**Ration Card Issuance and Delivery of Food grains to Beneficiaries:** Ration cards are issued by the State Food Department based on the beneficiary identification criteria decided by the government. It is critical, as many of the benefits of the PDS system are lost due to challenges like exclusion errors, duplicate cards etc. which may lead to diversions and leakages.

**Licensing and Regulation:** The objective of licensing process is to issue and renew licenses for FPS, Kerosene oil Depots and Wholesale dealers. And also monitor and regulate the operations of FPS.

**Grievance Redressal:** A well-functioning Grievance Redressal process builds the confidence of the beneficiaries regarding PDS. ICT interventions such as Call centres, online grievance registration, SMS etc can increase transparency in the system and bring in efficiency, effectiveness and accountability.

## ICT INITIATIVES BY CENTRAL GOVERNMENT

DoF&PD has initiated three schemes namely Integrated Information System for food grain Management (IISFM) system for FCI operations, Smart card based delivery of com-

modities in State of Haryana & Chandigarh UT and the 'Computerization of TPDS Operations' in three districts each of pilot States of Andhra Pradesh, Assam, Chhattisgarh and Delhi.

### INTEGRATED INFORMATION SYSTEM FOR FOODGRAINS MGMT

Food Corporation of India operates through a country-wide network with its corporate office in New Delhi, 5 zonal offices, 23 regional offices, 166 district offices, and nearly 1700 food storage depots.

The project which comprises of different sub-modules such as DIISFM (District Information System for Foodgrains Management), IRRS (IISFM Rapid Reporting Services), DCMS (Depot Code Management System) have been deployed suiting the business logics of FCI.

Following are the salient features of the work flow application

- Basic data collections and Transactions regarding Receipts, Issues & Dispatches of food grains at the depot level.
- Off-take against allocation of food-grains on different schemes of the Govt. of India.
- Movement of food grains through rail.
- Information related to chemical treatment/infestation carried out on the food grains, stored in the depot.
- Information related to trucks carrying food grains coming in and going out of the depot, gunnies, chemicals etc.

### SMART CARD BASED PDS (SCBPDS) IN HARYANA AND CHANDIGARH

The then Hon'ble Union Finance Minister announced in his budget speech of 2008 about replacement of paper based Ration Cards with SCBPDS in Haryana and Chandigarh. It is targeted to automate certain manual operations happening in PDS through online software application with minimum manual intervention, ready availability of reports and making the distribution process highly transparent.

#### Objectives

- Timely and need based allocation of commodities.

- Induction of transparency and accountability in operations.
- Reduction of redundant workload.
- MIS for monitoring and quick decision making.
- Integrating information relating to operations handled by different agencies.

#### Salient features

- Introduction of SCOSTA compliant Smart Cards for all the stakeholders.
- Web enabled, role and workflow based Application Software on Open Source platform.
- Distribution of commodities at FPS through PoS terminals using biometric authentication to check genuineness of beneficiary.

**Application Software:** After detailed System & Process Study carried out in Haryana and Chandigarh, generic software was developed by Central Team at NIC Headquarter. Implementation is taken care of by the respective state team in consultation with the central team. It can easily be customised for replication in other states. Various modules are -

- Data Digitization Software
- Centralized Application Software having six modules; namely
  - ▶ Allocation and Distribution,
  - ▶ Ration Card Management System,
  - ▶ FPS Licensing including renewal,
  - ▶ Key Management System (KMS),
  - ▶ PoS Operations Management,
  - ▶ Smart Ration Cards personalization & Printing
- Grievances Redressal

**KMS Infrastructure** has been established



Smart card based PDS in Chandigarh



Dr. Y K Sharma  
Deputy Director General, NIC

**Public Distribution System is targeted to feed millions of poor and hungry people. Numerous stake-holders make the system work through a chain of intermediaries, which also results in the need to have a robust monitoring mechanism. With the government's objective to bring in transparency, efficiency, accountability in the whole distribution process, Smart Card based delivery of commodities to beneficiaries was launched in Chandigarh (UT) and Haryana state. Integration of Allocation with the Stock Management System of Food Corporation of India and state agencies shall provide an end-to-end solution for food chain management for PDS.**



**Launch of Smart card based PDS in Haryana**

at FSDs and KMS based Smart Cards for key stakeholders has been finalized and are being printed & personalized.

### ITC IN PDS IN OTHER STATES

**Tamil Nadu:** A number of web based reporting systems have been implemented for streamlining activities for better management and control, and to introduce more transparency and efficiency. Various modules are -

- Monthly PDS Allotment Software takes care of monthly PDS Allotments for all FPS, monthly online data entry/updation of card statistics, and offtake and sales particulars.
- Follow-up Module takes care of back end activities by the department officials like follow-up of the complaints and submission of reply to the complainant by the concerned office.
- Reporting System for Enforcement Cell enables online reporting of cases detected, prosecutions made, commodities and vehicles seized.

**Uttar Pradesh:** Covering 1/6th of the country's population, it is perhaps the largest distribution network of its kind strengthening about 73,000 FPS. Digitization of all ration cards and making entire data accessible to public has been done. 21.6 lakhs bogus and ineligible ration cards and 2.6 lakh wrongful cards have been cancelled. SMS alerts are provided to ration card holders on lifting of rations which makes working of the department more accountable and transparent. For the convenience of

citizens, there is an option to lodge grievances/suggestions through website, which is monitored at all levels.

**Chhattisgarh :** The food grain supply chain from paddy procurement at 1588 procurement centres to delivery of Rice and other PDS commodities to 10500 FPS has been computerised. The three distinct areas are -

- Paddy Procurement and Milling module handles, through online and offline mode, the process of paddy procurement and milling. At remote areas where connectivity is an issue, innovations in form of motor cycle riders carry data and manage transmission.
- Unified Ration Card Database and issue of PDS commodities to FPS module manages Ration Cards and distribution of commodities. Ration cards are barcoded to bring in efficiency. For issuance, shopwise allocation and per card allocations are automated. Based on allocation and stock, the actual amount of PDS commodities to be issued to the FPS is calculated and a delivery order issued. A truck challan indicating truck number, driver's name, quantity dispatched etc is also generated.
- Citizen Participation website, Call centre and Complaint Monitoring System, e-mail and SMS alert are some of the features making the whole system transparent and accountable.



**Mr. A.K. Somasekhar, TD, NIC Chhattisgarh receives Prime Minister award for excellence**

**Maharashtra:** MAHAFOOD is a workflow based application, to provide an effective e-Governance tool for decision making and monitoring the progress of allotment, lifting, offtake and distribution of essential commodities under various schemes with the help of progressive and summarized information. The benefits accrued are optimization of allotment of essential commodities, summarization, consolidation of the information and Information sharing.

**Kerala:** Targeted Efficient Transparent Rationing and Allocation Public Distribution System (TETRAPDS), is a comprehensive package for automating the activities of 69 Civil Supplies offices.

Details of 70 lakh Ration card holders, in Unicode format, is maintained in the central database which is synchronized with the distributed ration card databases of TSOs/CROs. This consolidation also helps generate MIS reports, share the data with other government departments, national authorities and securely allow citizen access to their respective data.

Various agencies would use Ration Card Verification Service to provide citizen centric services like new electricity connection, water connection, building permit, LPG connection, telephone/mobile connection etc. The four main modules of TETRAPDS application are:

- e-Services for Ration Cards enable citizens to apply on-line or at Citizen Service centre (Akshaya Centres) for various services like new ration card, addition/deletion of members, change of address, renewal of ration etc.
- Ration Card Management System provides a workflow based solution for all citizen services which include issue of new ration cards, issue of surrender and reduction certificates, addition and deletion of members in the card, splitting of ration cards etc.
- Allocation covers food grains allo-

cation from the TSOs, Inspection by authorities and Monitoring of Permits and licenses. In addition, online calculation of allotment under different schemes, online generation of Authority for FCI, Authority list for wholesale dealers and generation of proceedings for TSOs are also incorporated in the application.

- Website provides information about the department, PDS, stock details of dealers and links to the websites of its related offices. It also takes care of Inspection Monitoring, Offtake, Demand Collection and Balance and Allotment of Food grains.

**Orissa:** An initiative has been taken in Paddy Procurement where modules for Miller Registration and Self Disclosure of paddy lifted, rice delivered and gunny bags used has been developed. Paddy is procured through a number of agencies which use an Integrated application for capturing the details of farmer, quantity sold, number of bags, Bank account no, Branch Name, Cheque no and date issued to farmer and SMS is sent to different level of officers. Another module keeps track of the acceptance note of paddy and rice which takes care of the quantity of paddy handed over to miller and quantity of rice delivered to Rice Receiving Centres. Computerization of Delivery verification / Enforcement Certificate and Delivery Certificate facilitates entry of paddy and rice related information by enforcement officer which makes verification by collector and CSO easier.

**Madhya Pradesh:** ePDS Allotments, Lifting & Distribution Monitoring System facilitates Monitoring of the PDS for the State, District and FPS level monthly allotments, lifting and distribution of essential commodities like Wheat, Rice, Sugar, Salt and Kerosene to over 20000 FPS. Allocation process covers district and FPS level allocation by Directorate and

district level officials. Lead Cooperative societies lifts the commodities on the basis of allotment and reports online through the system which is monitored by DFSO. The distribution is carried out by FPS and reporting is done by District Central Cooperative Banks.

Civil Supplies Movement System module caters to movement of commodities from FCI Base Depot to MPWLC godowns, Issue Centres to FPS movement, Transport Order, Release Order, Delivery Order for receipt and dispatch of Foodgrains.

FPS Management and beneficiaries' Management module takes care of FPS and beneficiaries management. Ration card data is being used in the UID enrolment camps where biometrics are captured.

The department envisages providing bar-coded Food coupons to each beneficiary according to their entitlement. The food coupons will be electronically read after submission at the FPS by the beneficiary for consumption reporting.

**Andhra Pradesh:** The Stock & Accounting package takes care of the Procurement, Transportation and Supply of essential commodities to FPS. It covers all activities starting from release of funds by Government, procurement, transportation to stock points, sale to FPS, billing for transportation, recording all vouchers in various accounting books and generating various schedules & reports. It covers all ledgers like Receipts, Payments, Petty cash, Journal etc and adapts corporation approved double-entry accounting system. Various MIS Reports are also generated.

**Gujarat:** A web based solution was implemented in all talukas covering more than 1.2 crore families. The ration card functionalities covered are Issuance, amendments, cancellation, division, change in category, transfer from one FPS to another and printing. However, a new ration card and PDS system is under development which



**Shri. C. Vishwanath**  
Joint Secretary (BP, PD & WDRA)  
Department of Food and Public  
Distribution

One of the key reforms in Targeted Public Distribution System is with widespread usage of Technology based applications. Rapid and phased roll out of Information Technology in PDS is being given top priority. Use of GPS technology, SMS alerts, CCTV monitoring are some of the other applications used for proper monitoring of PDS.

would give bar-coded ration cards to the beneficiaries. Biometrics details along with photograph will also be captured.

**CONCLUSION:** One can thus see that there have been lot of efforts in many states for automating various components of Public Distribution System, there is a need for organising these efforts and drawing a big picture to have effective use of ICT tools. The software modules for different components should be integrated and an end to end solution should be developed to build an efficient PDS. It has also been recommended in the Task Force Report on Computerisation of PDS, 'standards should be developed for processes, data and meta-data and accordingly a single unified solution should be developed that shall be used by all States'. NIC has accordingly been assigned this mandate by DoF&PD, GoI.

# XGN - Xtended Green Node

**Gujarat Pollution Control Board (GPCB) was constituted with a view to protect the environment, prevent and control pollution in the State of Gujarat. GPCB is the main beneficiary of the Xtended Green Node (XGN) software. The XGN system ensures effective monitoring and inspections of hazardous, bio-medical waste generation, treatment and its eventual disposal control certificates to that effect.**



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# X

Edited by **Vivek Verma**

XGN is a web enabled software developed by NIC Gujarat State Unit, in consultation with the GPCB Technical & Laboratory Teams, for the day to day operations of any State Pollution Control Boards in India. Out of the 18 Modules that have been identified, 12 have already been developed & implemented in the state since June 2008. The application is used by the staff of 18 field Offices and GPCB Head Office.

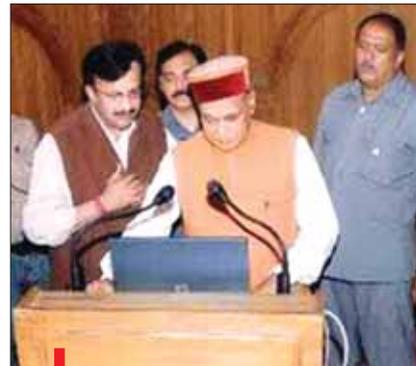
Number of Delivery Centres circles around the Head Office at Gandhinagar, 18 Regional Offices of GPCB at District HQs, 8 Laboratories, 18500+ Industries and 28000+ Hospitals and Clinics spread all over the state. Additionally 22 Treatment Stabilisation Disposal Facilities (TSDF), 30 Common Effluent Treatment Plants & 14 Common Bio-Medical Waste Operators are also delivery centres for XGN, averaging around 2400 users daily.

Although, geographically the centres are spread all across the state, but for an end user a system with a broadband connectivity is the minimum resource required to ensure its reach to a delivery centre. To facilitate usage of XGN by Small Scale Industries, who are devoid of connectivity and infrastructure, Kiosks have also been opened at some Industrial estates and Association offices.

## XGN MODULES

**Some of the XGN modules covering day to day functionalities are**

**Industry Profile:** Sector, Location, Scale, Previous NOC - Authorizations Details, Products, Raw Material, Investment and Air/Water/Hazd Technicalities



**XGN-launch in Himachal Pradesh by Hon'ble C.M Prof. Prem Kumar Dhumal**

**Online Application Module:** For Industries covering NOC, CCA Application, Uploading Pages, Fee Payments, etc.

**Applications Scrutiny System:** e-Talk, whereby you can pass and receive message to/from the board, forms the base.

**E-File Movement:** Covers the file movement upto the Final GRANT/REJECT. It covers Putting up to, Queries, Replies, Notings, and Comments.

**The Inspection Module:** It covers Visits allocation, Inspections Due, MPRs, HO References, and Freezing of Inspection Reports.

**The Laboratory Module:** This module covers Sample collection, Dummyming, Parameter Allotment, Testing Results and Reflection to various levels.

**The Accounting Module:** It covers Application Fees, Fees Slab, Lab Bills, Payments and Water Cess.

**CPCB & GPCB Projects Monitoring:** Sampling points parameters, GEMS / MINAR / AAQM etc.

**Municipal Solid Waste Management System:** 183 Local Bodies are the End Users.

**XGN-Control Module:** Tracking Management Keys to Implementation

**Hazardous Waste Monitoring System:** Facilitates monitoring of Hazardous wastes Generation, Manifests, Disposal and Recycling.

**The LEGAL Module:** Show cause notice, closure directions and bank guarantees.

**The Water Cess Module (WTC):** A total Online Application right from E>Returns to Assessment Orders & Payments.

**The Bio-Medical Waste Management System:** Briefly covers all the above Modules for Industries in brief, but with different parameters and modus operandi (**BMW Act**).

**The Public Grievances/Complaints Redressal System:** A G2G Utility (CRS).

### CRITICAL INDICATORS

In order to have a better control, a robust monitoring mechanism by way of alerts has been integrated into the system. Some of the XGN generated alerts to Department for better follow-up & Industry Monitoring of Pollution Acts violations (Air, Water, Hazd) are -

- Industries due for Monitoring - District, SIDC wise.
- Applications in pipeline (workload coming month).
- Would be operating without Consents in coming 3 months.
- Watch Dog points for the next Inspections Visit to an Industry.
- TSDFs & CETPs Capacity v/s Current load of incoming waste.
- Staff & R.O. Head sitting on files since stipulated period of disposals.
- Comparison of Sample Results drawn by staff v/s N.G.Os.

### REPLICABILITY AND SCALABILITY

XGN has gradually matured into a rugged & a reliable tool. It is a standardized product which can be replicated to other states to bring in standardization of official procedures. It is equally scalable as CPCB related requirements can be addressed by making a provision in the software.



XGN - Recipient of National e-Governance Award

CPCB Branches can also be given access to XGN so that they can have direct access to State's data relating to Inspection, Sampling, and Results & Compliance of Consent & CTE.

In last one year it has been replicated in 3 states namely H.P, Uttaranchal & Goa and requests have been received from 3 more states to have XGN implemented. A low customization expense needs to be borne by the respective state thus leading to a very generalized software running on common platform across various states. This ensures high scalability, reliability and replicability.

### BENEFITS

- Increase in revenue from 28 Crores to 76 Crores.
- Non existence of BMW & Water Cess Files at Field Offices. Fully Online Application.
- SMS facility for all the 18 functionalities of Pollution Control Board for handlers of Industrial and hospital's bio-medical & hazardous waste.
- XGN has aided in acquiring ISO 9001, IS/ISO 14001:2004 certification & also getting the coveted NABL accreditation.
- 12% of staff has retired in last 3 Years and no new recruitment undertaken.
- 8 New Field Offices opened, Inspections have tripled, Samples drawn doubled and Legal actions have doubled.
- Paper Correspondence has totally

stopped between the Department and Industries/Hospitals as well as between Regional Offices & Head Office.

- Continuity of services and smooth transition in an event of new field offices being opened and bulk transfers taking place respectively.

### ROAD MAP AHEAD

New concepts that are in pipeline and shall soon be introduced are -

- Introduction of PDA for the Monitoring Teams.
- GPS system for tracking the Movement of Hazardous Waste Carriers.
- Mobile computing by the Hospitals / Clinics for the Bio-Medical Waste generated and disposed off.

### ACCOLADES

**National Recognition:** XGN has been awarded in different categories basically for BPR and total computerization. 1. National e-Governance Award 2009 (Categ : Process Re-engineering) 2. CSI Award 2009 (Special Recognition - Department Category).

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# e-Abhijoga : Chief Minister's Online Grievance Redressal Portal to reach the unreached

Government of Odisha has taken up on priority basis the e-Governance initiative to bring transparency in Public Administration and Grievance Redressal. Thus the State Government and National Informatics Centre (NIC) have jointly committed to implement e-Abhijoga Grievance Redressal Portal in the Grievance Cell of Hon'ble CM.



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Hon'ble Chief Minister Sh. Naveen Patnaik inaugurating e-Abhijoga, receiving online petition (Inset)

Edited by **R. Gayatri**

e-Abhijoga ensures that a citizen gets speedy and transparent redressal of the grievances. It primarily aims at submission of grievances by the aggrieved citizens from anywhere, anytime. Following activities are carried out online thus reducing the physical movement, increasing the reach of Government and availability of content/services to the common citizen -

- Lodging of the grievance by a citizen.
- System generated unique registration number on online submission of grievances by citizens, through Internet using any Browser Interface.
- Acknowledgment of grievance by concerned organization.
- Initial assessment of grievance by concerned organization for follow up action.
- Forward and transfer of grievance

for Redressal.

- Reminder and clarification by a citizen if required.
- Additional information sought from the citizen for timely redressal of grievance.
- Time to time status of the grievance to the common citizen.
- Redressal action and Disposal of the case.
- Communication of final outcome to the citizen.

The entire history of the grievance is available to the Grievance cell, subordinate offices concerned and the common citizen online. This has helped in bridging of digital and content gap.

**Technology Used**-Open Source platform and adherence to Open standards.

The technology platform was carefully chosen with proven open source technologies like Linux, PHP and PostgreSQL and other proven, reliable open source tools with the objective to conform to open standards. The deployment architecture dia-

gram is presented below.

The web based e-Abhijoga, Odisha State Grievance Redressal Portal (<http://cmgcorissa.gov.in>) was launched by Hon'ble Chief Minister of Odisha Sh. Naveen Patnaik on 31st July 2010. This mega function was addressed by dignitaries like Hon'ble Ministers of PGPA, Health, Revenue & Disaster Management, Planning Co-ordination & Panchayati Raj and Chief Secretary

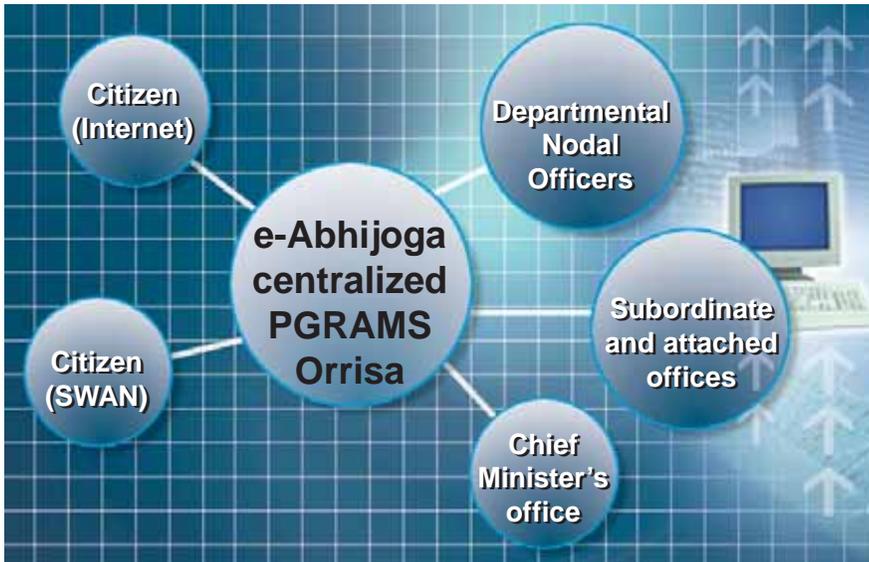


e-Abhijoga team

Sh. Tarun Kanti Mishra, IAS.

SIO, Odisha gave a vivid presentation about the benefits of the software. All the 30 District DIOs, Collectors and SPs participated in the event live through Video Conferencing.

CM's office keeps track of the status of the grievance down the line. It is a fool proof portal which takes care of both G2C and G2B activities.



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**MODULES**

|                                       |   |
|---------------------------------------|---|
| <b>Lodge Grievance</b>                | <b>This module</b> facilitates free online registration of grievance in the e-Abhijoga portal. Departmental users are created by the nodal officer of the department and are assigned different roles.  |
| <b>Lodge Reminder / Clarification</b> | <b>This module</b> facilitates the citizen to send reminder/ clarification.   |
| <b>View Action Status</b>             | <b>This unique</b> module facilitates the citizen to monitor the progress / status of the grievance, thus enhancing transparency.   |
| <b>Master Management</b>              | <b>This module</b> facilitates online creation and management of all sub-ordinate offices in the hierarchy in the grievance redressal process in the portal.  |
| <b>Administrative Module</b>          | <b>This module</b> facilitates the CM's Office and other sub-ordinate Offices to study the grievance, categorize - either to take action at their end or to forward to sub-ordinate office and after receiving the action taken report- final disposal. |
| <b>Monitoring Desk</b>                | <b>This module</b> enables the CM's office to monitor the entire grievances received. It also facilitates the grievance position (disposal and pending) with sub-ordinate offices.  |
| <b>Correspondence Letters</b>         | <b>This module</b> facilitates to generate and issue acknowledgement letters and final reply letter to the aggrieved citizen.   |
| <b>Report Module</b>                  | <b>This module</b> facilitates to generate different progress reports.  |

# ELECON 9.0: Managing Assembly Elections in Bihar

**Polling party formation, deployment of patrolling personnel, tagging of booths with the polling party, Electronic Voting Machines (EVM) randomization, vehicle allotment to the parties - all through random number techniques as per Election Commission of India (ECI) guidelines were made possible with the extensive use of ELECON 9.0 (Election Confidential) at the recently concluded assembly elections in Bihar.**

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Edited by  
**Prashant Belwariar**

**E**LECON software, winner of 11th National e-Governance Award (Silver Medal) - 2008, was designed and developed by NIC Bihar State Center, the first in the country to extensively use ICT in the election processes. Feature rich ELECON, generates various MIS reports for the Returning Officers (RO) and Central Observers as well as incorporates Web GIS modules for better management and planning. The software is used to bring transparency & fairness in the poll practices, maintain data secrecy, and implement mechanism to weed out any kind of bias.

## WORK FLOW

A thorough analysis of ECI's guidelines and compendium of RO handbook was studied. Analysis revealed that in terms of computerized system, a workflow based system need to be developed covering all aspects of election processes like Polling party formation process, EVM Process, Force Deployment Process, Counting Process, Communication Plan, online monitoring of Model Code of Conduct etc. Keeping in view of the above ELECON 9.0 was developed and provided software solutions such as- **ELECON Ver. 9.0, EVM Randomization Ver. 2.0, Force Deployment Ver. 2.0, Counting Ver. 2.0, WebGIS for Election**

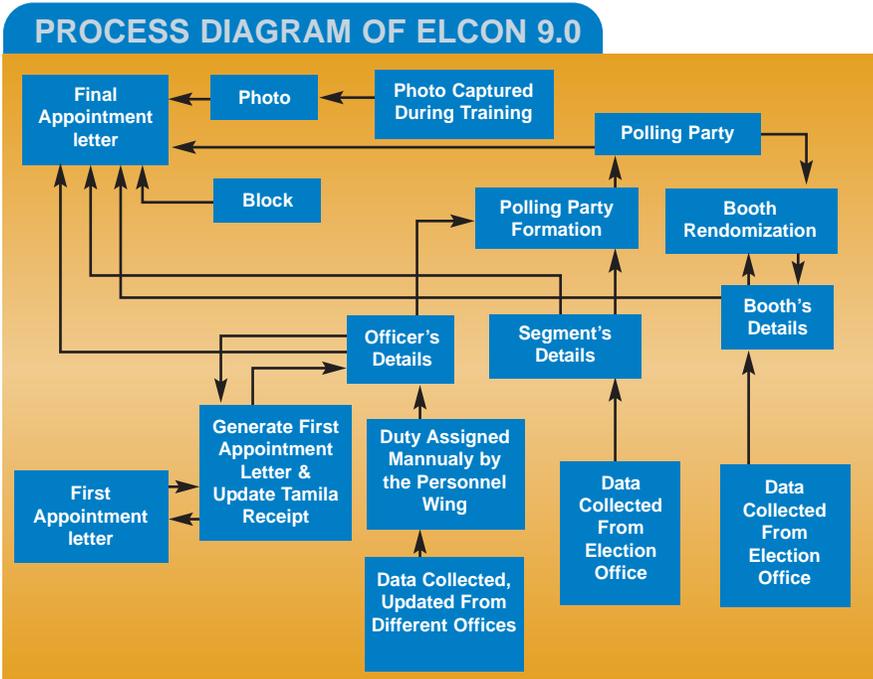
The Data Entry module provides PCCPs tagged booths, Micro-observers tagged booths, and Tamila delivered. Also unique Serial Number wise photo upload facility has been

provided to upload the digital photographs of the polling personnel. The Processing module incorporates Polling Party formation, Reserve Polling Party Formation, Counting Party Formation, Magistrate Party Formation, Reserve Magistrate Party Formation, Micro-observer Party formation, Reserve Micro-observer Party Formation, Cameraman Party Formation, Reserve Cameraman Party Formation, Booths Tagging (Polling Party), Patrolling Magistrate Booths Tagging, Micro-Observers Booths Tagging, Cameraman Booths Tagging, Counting Table Allotment.

“On account of greater acceptability of ICT tools in managing election processes, Bihar Assembly Elections has achieved many milestones in conducting free and fair elections

**Sh. Sudhir Kumar Rakesh,**  
IAS & Chief Electoral Officer, Bihar

The Report Module generates appointment letters and other reports to facilitate the District Election Officer in taking informed decisions. The reports generated are first, second & final Appointment & Counting Letters, Assembly Segment Allotment Chart, Table Allotment Chart to Counting Personnel AC wise, List of Personnel AC/ Table wise, Duty wise Counting Personnel, List of Deputed Personnel (Duty wise), List of Deputed Personnel (Block/Duty wise), List of Personnel (Not assigned duty), Tour Advances etc.



**TECHNOLOGY**

ELECON 9.0 is a client/server architecture software developed for networked windows environment with SQLSERVER 2005/MS-Access as database. It was successfully used for 38 DEOs and 243 ROs of Bihar.

**EVM RANDOMIZATION VER 2.0**

- Follows ECI guidelines in letter and spirit.
- Two staged randomization deployment technique.
  - ▲ 1st Level Randomization for AC Allotment to Ballot Units (BUs) and Control Units (CUs).
  - ▲ 2nd Level Randomization for: Booth Allotment to BUs and CUs within AC.
  - ▲ Provision for 2nd BU (if necessary).
- Synchronization of Data with ELECON for reflection of BU,CU used at booths in the appointment letter of polling party.

**FORCE RANDOMIZATION VER 2.0**

- Follows the guidelines of Chief Electoral Officer, Bihar.
- Importing & exporting of police personnel data from/to other district.

- Allotment of police personnel depending on predefined requirement against each booth by picking up police personnel from the data base randomly.

**MIS REPORTS**

- Generation of computerized command for the police personnel.
- Multi-level data security at the level of Database, User & Observer.
- Automatic Application/Data integrity checking before start of work.
- Preparation of Polling Officers Identity card used during poll.
- Generation of Appointment Letters with Photo features.
- Generation of Telephone Directory of the personnel used at various booth for the poll day for easy communication.

**RO/ARO COUNTING VER 2.0**

- Flexibility in defining no of tables in counting Hall and number of candidate.
- Provision for Round wise Table wise Candidate wise count data entry.
- Provision for Round Wise Counting Sheet Report.
- Provision for Round Wise

Summary.

- Provision for Generation of Form-20 (Final Result Sheet) against each AC/PC.

**WEB GIS MODULE**

Web GIS module envisages establishment of Bihar State Election Spatial Data Infrastructure for Multi-Layer GIS for planning and e-Governance by taking advantage of existing & available data and ICT infrastructure resources.

This is largely meant to visualize MIS data spatially through thematic maps for making quicker and better decisions. This has been introduced to bring dynamism and transparency in the process in order to overcome problem related to planning, development, monitoring & decision-making during election process by Chief Electoral Officer, Observers, DEOs and ROs. District and Block wise maps, AC wise maps, Naxal Affected Areas mapping, Election Phases with timing, Mapping of Polling stations and linking maps with communication plan etc. GIS Division, NIC (HQ) actively supported in the process. This is accessible through <http://gis.bih.nic.in/>

**OTHER MODULES USED IN THE ELECTION PROCESSES**

Online Monitoring System for Daily Progress Report on Various parameters of Modal Code of Conduct, Uploading of Affidavits of Candidates, Electoral Rolls Enquiry and Support for Help Desk, Communication Plan for RO, ARO, Polling Stations, SMS Monitoring of Poll day preparations and poll day management.

**For further information**

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# Manipur: Online Tenders for PMGSY through e-Procurement System

Procurement delays, unfair bidding practices, opaqueness in government processes, etc. have become things of the past with the deployment of Government e-Procurement System of NIC (GePNIC) in Manipur. The system provides transparency in the tendering process, reduces time for procurement, offers equal opportunity to all bidders, and encourages maximum participation leading to greater competition. The Manipur State Rural Roads Development Agency (MSRRDA), which procured goods/services through manual tendering process for construction and maintenance of rural roads under Pradhan Mantri Gram Sadak Yojana (PMGSY), adopted the new system developed at NIC Chennai.



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Edited by  
**Prashant Belwariar**

**G**ePNIC is an online, efficient, secure, web based system which uses Digital Signature Certificate (DSC) both for authentication of users and encryption of documents. This makes the system full proof from unwanted access and tampering of bid documents. The e-Tender portal hosted at <http://pmgsytendersman.gov.in>, made the procurement process online by facilitating MSRRDA to create & publish the tenders, evaluate the bids and assign the contract to the bidders. The system provides a secure platform to users for online transactions for procurement. The registered bidders can access the live tenders through this site and submit their bids online duly encrypted at their end. *This portal went live with the publishing of 69 tenders having estimated value of Rs.231.65 crores of MSRRDA thus making Manipur first state in NE to implement this solution.*

**Bidders** can access tenders or upload bid documents - 24x7 from the comforts of their office /home. The bids submitted by bidders are digitally

signed along with a time stamp at bidder's end thus ensuring authenticity & eradicating false bids. Authentication using DSC 128 bits SSL encryption, Role based Access Control, Audit Logging, and History Tables. Time stamping of bids makes the process fully transparent. With the successful opening of Technical & Financial bids of all the 69 tenders, the process for the awarding contract to the bidders had started.

**MSRRDA** being a Govt. organisation faced many problems and challenges in deploying this online solution system. Among the challenges faced were management related, ensuring data integrity and confidentiality and non-repudiation of information and its authenticity; providing support to various classes of users with different level of computer literacy, issuing DSCs to private bidders etc. With the active participation and interaction with all the stake holders, the project was implemented successfully. One of the common goals amongst the stakeholders was to create a working environment where the comfort levels of all the users of the system are high.

Since the adoption of this online solution system, MSRRDA has been able to fulfil the goals initiated by

## Before Deployment

- ◆ Manual procedure for tendering by MSRRDA prone to malpractices
- ◆ Huge advertisement cost incurred for advertising the tenders invitation
- ◆ Tedious time consuming tabulation procedure
- ◆ Large paper works
- ◆ Cumbersome bidder interaction

## After Deployment

- ◆ Online transparent system eliminating malpractices
- ◆ Reduced the tabulation and procurement time cycle
- ◆ Saving from short, crisp and to the point ads as against long ones carried earlier
- ◆ Less paper works
- ◆ Effective bidders interaction with officials



Workshop cum Training on e-Procurement

National Rural Roads Development Agency (NRRDA) - the national agency executing the project. Reduced procurement time cycle, increased efficiency, saving from huge advertisement cost, reduction in tabulation time, less paper works, etc. were the additional gains from the new system.

**Building Blocks:**

- Dedicated Blade Server at Laxmi Nagar Data Center of NICSII.
- Server Collocation and Dedicated SAN by NICSII.
- Disaster Recovery Integration at Hyderabad.
- Central e-Procurement Team.
- Members from NIC, NICSII & Empanelled Agency.
- DSC facility by NICCA.
- Dedicated Help Desk.
- Training at State Level for officers and Bidders.
- Dedicated NIC Coordinators from each State.
- Hired manpower for implementing States.
- Pilot/Rollout.

**Technology used:**

- Open Source Technology adhering to open standards.
- Linux Platform.
- Apache Tomcat Web Server.
- Postgresql Databas.
- Java Enterprise Environment (JEE)
- Jasper Reports .

**BACKGROUND**

A demo-cum-training server for hosting this online solution at

<http://tenders.man.nic.in> was set up at NIC, Manipur and Digital Signature Certificates (DSC) were issued to officials who are going use this system for tenders - creation, publishing, evaluation, contract awarding etc., of MSRRDA from NIC Certifying Authority (NICCA). For issuing DCSs to bidders & helping them in addressing any issues relating to DSCs, MANITRON was made Licensed Registration Authority of Sify with the approval of Government of Manipur. Thereafter, NIC, Manipur started imparting training to officials of MSRRDA & MANITRON on the usage of the new system & DSC.

Meeting with MSRRDA were called to discuss the readiness for rolling out e-Tendering Process in Manipur. Then, the directives from NRRDA & NIC (Hq) had made Manipur to join the National roll out of e-procurement using GePNIC.

**Implementation strategy**

With the initiatives of NIC, Manipur &

**Stake Holders**

- NRRDA & MSRRDA
- NIC & NICSII
- DST & IT
- MANITRON (Sify)
- (n)Code
- BIDDERS

**Statistics/Facts of the project**

- DSC-94 issued for Bidders
- Registered bidders - 72
- Bidders participated in bidding - 61
- No. of Training conducted - NIC & MSRRDA -10
- MANITRON - 12

DST, Government of Manipur, MANITRON was made the LRA of Sify for issuing DSC to private bidders, for taking care of bidders and their related issues. MANITRON officials were also trained by NIC, Manipur as trainer and they in turn trained bidders and addressed day-to-day issues of the bidders. A monitoring committee and another core committee for e-Tendering were also constituted for the smooth implementation of the project. NIC took the responsibility of issuing eight DSCs to the officials of MSRRDA from NICCA. NICSII through (n)Code provided the support staffs for assisting bidders, officials of MSRRDA & NIC, manned the e-Tendering helpline of Manipur during office hours. A help desk was opened with the aim of attending & addressing any issues of bidders relating to e-Procurement. Besides these, regular meetings were conducted with the officials of MSRRDA & NIC for discussing & resolving issues like state specific requirements, trainings etc, for overall smooth & successful implementation. The state specific requirements of MSRRDA like Direct Credit (DC) facility in offline payment option, misc. folder, proof of possession of machinery etc. in My document space were introduced & incorporated in the system after consulting the development team at NIC, Chennai.

**Conclusion**

The system is likely to revolutionise the government procurement process thereby speedup development and is a major step towards e-governance. The next objective of the e-Procurement team in Manipur is to introduce modules of online payment gateway, automatic technical evaluation in the system for next phase of procurement by MSRRDA.

**For further information**

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# Karnataka: Empowering Rural Citizens by Taking ICT to Their Doorsteps

Bridging the gap between the haves and the have-nots has been the focus of the Government of Karnataka. The aspiration is being fulfilled by continuously providing more and better services to the citizens. The rural citizens are empowered by taking ICT to their doorsteps thus enabling them to demand their rights along with providing urban masses with a better interface for their interactions with the Government.



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His Excellency, the Governor of Karnataka, Sh. H.K. Bharadwaj inaugurating the computerization process

Edited by **R. Gayatri**

**T**HIS article gives a bird's eye view of some of the large and successful projects architected, designed and developed by NIC, Karnataka. Use of bio-metrics for authentication, digitally signed documents, water marked and hologram affixed stationery, integration with payment gateways, SMS technology in almost all applications facilitate secured transactions and convenience to citizens.

**VATSoft** - for the Commercial Taxes Department-facilitates the 3.9 lakh dealers to register, make e-payment, file returns online, download statutory forms, view their records maintained by the Department and provides an electronic face of the Department. The stakeholders - dealers, bankers, VAT officers, audit/enforcement officers, check post officers, treasury - exchange data electronically. The officers act on these requests of the dealers enabling quicker and

transparent approvals. The documents / way bills produced at check posts are verified against the on-line document / SMS message. **It is mandatory for all the dealers to file the returns electronically and more than 2.5 lakh dealers have filed the return last month. On an average Rs 1000 Crores are received through E-Payment every month. 7 lakh WayBill forms are filled up and downloaded (as part of E-Forms Services) and 1 lakh CST forms are filled up on-line and downloaded by the dealers.**

**Rural Digital Services- Nemmedi:** Facilitating the rural citizen's interactions with the Government, RDS is a single window system for delivering 40 G2C services to the citizens from village level kiosks. Implemented in 2006, it is the first successful project implemented using the PPP model in the state. Accepting the oral request from the citizen, giving an acknowledgment, checking the status and printing of the digitally signed certificate / endorsement on watermarked sta-



The winners at the award ceremony

tionery affixed with hologram are facilitated at the village tele-centre while the rest of the activities are performed at the taluk back office.

The software facilitates queuing of messages when connectivity is not available, processing of applications on FIFO basis, tracking of the water marked stationery, enabling issue of certificates across the counter, using data of ration card to digitally sign the data in bulk mode to facilitate speedy delivery of services etc. **For the current financial year till date more than 53 lakh applications have been processed in addition to 46 lakh Land Record Certificates being delivered through the above infrastructure.**

Nemmadi project has won the 'Microsoft e-Governance award 2007', 'Silver Icon' in the National e-Governance awards - 2007, 'Government Technology award for eGovernance in the Asia Pacific region- 2007' organised by Public Sector Technology & Management magazine

**Minerals Activities Administration System (MAAS):** Department of Mines and Geology in the state uses **INTRAMINE** - a workflow based software for the management and administration of mineral activities such as issue of mining, quarry licenses / per-

mits adhering to central and state acts and rules. The **Permit Management System** has brought in solace to the otherwise concern area of issue and management of permits for monitoring the transportation of minerals at check posts. Integration with payment gateway / net banking enabling the lessees to apply for permit from convenient locations, remit the royalty and statutory fees and taxes, print the permits for transporting minerals, SMS, mobile check posts & enforcements and GIS applications with maps integrated with the lease / permit master data are other value added services.

**Land records management system- Bhoomi:** Bhoomi, developed by NIC, Karnataka is the flagship e-Governance application. From the vanilla application, it has been enhanced to enable citizens to obtain digitally signed land records documents, to integrate survey activities with land records mutation process, to synchronize survey with records updation during a transaction, to initiate land registration by tightly integrating with the bhoomi system and then automatically initiating a mutation transaction in Bhoomi system to update the land records details. The land acquisition software integrates with



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SIO, Karnataka, NIC

The industrially progressive state of Karnataka has experienced significant growth in ICT in the last decade.

Greater emphasis on development, the vision of the State leadership in adopting different models of project implementation, coupled with new technologies has resulted in a paradigm shift in the way e-Governance has penetrated in the state. Better computing and network infrastructure has had a catalytic effect in taking the benefits of ICT to every corner of the State. The highly qualified, well trained and motivated officers of the NIC State Centre have been closely interacting with the State Departments in conceptualizing and architecting major G2C applications for the State. NIC, Karnataka has built up capacity for carrying out major application development following all the steps of Software Development Life Cycle thereby ensuring quality. Skill sets in both proprietary and Open Source Technologies are available for project execution. The commitment with which the NIC officers have executed the projects have brought in many awards like National E-Governance awards for Bhoomi, Nemmadi, Excise, Commercial Taxes project etc., Highly available network connecting upto the districts and 24X7 hosting facilities in the NIC Data Centre have greatly helped the user to embark on massive delivery of services on-line. On this occasion, I would like to assure our valued users that NIC will continue to be their valued partner in all their e-Governance initiatives.



**SH. RAJEEV CHAWLA, IAS**  
Special Secretary to Govt.,  
Revenue Department  
(BHOOMI & Urban  
Properties Ownership  
Records)

I am happy to know that Karnataka is being covered as state in focus in INFORMATICS magazine. NIC Karnataka has designed and developed many successful flagship applications. BHOOMI, NEMMADI, SACHIVALAYA VAHINI are few to name. I strongly feel that, it is important to involve NIC in some way or the other in each of the e-Governance projects as it provides the much required crucial continuity for projects.

Bhoomi by updating the bhoomi records at different stages in the land acquisition process which is completely automated. Use of handheld devices for crop updation, capturing GPS coordinates and photographs of crops is being piloted in Mysore District. It has won many awards like National E-Governance award, CAPAM-Sweden etc., Land records of nearly 7 million farmers (20 million records) are digitized and maintained in the central repository at the SDC and more than 1.5 crore land records are issued during the year.

**Digital OFS (Order for Supplies) and Excise Permit System:** The software was developed for regulating and controlling the supply and distribution of liquor in the state of Karnataka. Karnataka State Beverages Corporation is a pioneer in using technology to enable electronic indent, processing, approval and delivery of digitally signed OFS and enabling the state excise Department to generate online excise transport permits. This facilitated arresting pilferage by tracking the excise adhesive labels, maintaining optimum stock at depots, preventing evasion of excise duty

and protecting State Excise revenue. The project won the **National E-Governance Bronze Award: 2008-09** under the category - "**Exemplary Usage of ICT by Public Sector Undertaking**".

**e-initiatives in Municipality:** Bangalore Municipality- Bruhat Bengaluru Mahanagara Palike (BBMP) has introduced e-initiatives for Property Tax Payment, Birth/ Death Registration, Trade License System and Grievances Monitoring System. Property tax software is hosted for the public to calculate the property tax to be paid based on given parameters and make e-payment or pay at service centres. Registration of birth/death at citizen service centres and by the hospitals, has led to a transparent, efficient and handy system for issue of birth/death certificates.

**Postal Accounts Current System (PACS):** PACS Software - reporting, accounting and reconciliation of government business transactions of all postal units across the country is done over the national postal network through a workflow driven software. Automatic reconciliation of transactions between postal units with RBI and agency banks has been achieved by use of electronic generation of e-Scrolls and PO schedules.

**Tool for automated Gram Panchayats-Panchatantra:** Panchatantra enables the Gram Panchayats to maintain data of beneficiaries availing subsidy, assets and liabilities and also provides citizen services enablement, GP fund management guided by the double entry accounting system, property tax system, MIS on the different schemes and works. Checks and balances as part of the workflow built in some of these systems ensure proper approvals for different works and clearing of bills.

**BWSSB Ganakeekrutha Graha-kara Seve (BGS) for BWSSB:** BGS - online system for Revenue Billing and Collection of BWSSB (Bangalore Water Supply and Sewerage Board) is operational since April 2003 computerising the activities of the Cash Counter, Sub-Divisions and head office. It has won the **First prize in National Urban Water awards 2009 - Achieving Cost Recovery**

**Sh. H.R.Srinivasa, IAS,**  
Director,  
Department of Mines &  
Geology, Karnataka  
Government



The Centralized Permit Management System (PMS) has been operational in DMG for the issue and management of Mineral Despatch Permits throughout the state for the last three years. The Workflow Driven INTRAMINE software helps administrate the lifecycle activities of various types of leases, licenses and permits in the state. With the introduction of Net Banking, INTERNET based services for Lessees, SMS based monitoring and an enforcement system at Check Posts DMG has been able to provide transparent services to lessees and public. We are also introducing systems at the mine heads for capturing the vehicle number, weight etc and to issue trip sheets with RFID tags. NIC Karnataka has been providing very useful ICT support to DMG"

**KARNATAKA** is in the forefront in e-Governance initiatives and has been so for more than half a decade now. The mission of the Department of e-Governance is to deliver services to its esteemed population "anytime, anywhere and through any device". With this mission in view, the State has rolled out many initiatives.

The dream of the state has been to reach to the citizen's doorsteps through ICT. Including the far-flung villages as part of the digital world has been possible by the use of ICT which would have otherwise been left aloof, under developed and to whose residents the benefits offered by the Government would never reach. Karnataka has been the fore-runner in this race of e-Governance and has several feathers in its cap. Bhoomi - the land records management system was the first G2C service enabling the farmers to obtain a copy of the record of rights without hassle. Taking a step forward in providing land records and other G2C services, the Nemmadi programme enabled the citizens to avail about 40 services from the village telecentres established by PPP vendor. The enabling factor for taking ICT to Gram Panchayats has been the development of the Panchatantra system. NIC has been playing a noteworthy role in architecting the software and providing support in the successful implementation of these projects.

The computerization of the High Court of Karnataka has benefited the advocate community and the citizens by reducing their visits to the court for mundane activities.

The Sachivalaya Vahini - a basket of applications for the Secretariat - has brought in a sea change in the minds of people about administration by bringing in transparency and accountability.

G2B application such as the VATsoft for the commercial taxes department has enabled the dealers to perform all their interactions with the department on-line by interfacing with payment

gateway.

The urban population has not been left behind in the use of ICT. The citizens of Bangalore pay their Property Tax sitting in the comforts of their home, obtain certificates and make utility bill payments from citizen service counters.

The Bangalore-One initiatives, with more than 70 centres in the City, doles out 43 different services round the world.

NIC has been an important player in all these initiatives by architecting the solution and using state of the art technology enabling a smooth transition to the e-Governance era. It has also added value to realize our dream of "Digital Karnataka"

The paperless office product has brought in a sea change in the minds of the people about administration. The support for computerization and enablement of e-Governance in the municipalities, panchayat raj, commercial taxes, RTO using the state of the art technologies is laudable.

The Department of e-Governance, Karnataka, has the definition of rolling out initiatives in the e-Governance space, with no parallels in the country, in many projects. The first State Data Centre in the country, the first rural BPOs in the country, the first of Customer Service Centres in the country, the first end-to-end e-Procurement solution in the country etc. speak volumes on the extent of ground covered in the technology space.

The Department of e-Governance, Government of Karnataka, has now taken up the initiatives of replicating the exercises and transplanting the success stories in other States in the country. This will go a long way in replicating the success stories as, reinventing the wheel is not only futile, but a drain of resources.

Karnataka leads the way in e-Governance and sincerely believes and practices the premise that e-Governance is the only road to good governance.



**SH. M.N. VIDYASHANKAR**  
Principal Secretary, Department of  
e-Governance, Karnataka



**DR. H.N.KRISHNA**  
State Information  
Commissioner ,  
Karnataka Information  
Commission

ICT is put to Best use in KIC. The entire workflow in the KIC along with enabling the citizens to know their case details is made possible. The citizens are also facilitated to know the status of their petitions through sms. All these things are a reality due to the dedicated efforts of NIC. NIC is instrumental in bringing the ICT culture in KIC. I would like to place on record my appreciation for the efforts of NIC in automating the process of KIC.



**SH. P. B. RAMAMURTHY, IAS**  
Chairman, BWSSB

National Informatics Centre, Govt. of India, Bangalore has been playing a vital role in e-governance implementations of BWSSB. The Revenue Billing System has improved the efficiency of our Billing, Collection and providing deliverables in a citizen friendly manner. Long years of NICs association with BWSSB has brought in many enhancements like introducing Spot Billing, Any Where Any Time payment, variety of decision making reports which has helped the board to take vital decisions anytime.

I wish NIC's dedicated team all success for our future initiatives in e-governance plan.

**Through Effective Billing And Collection**, error free bar coded bills and anytime/anywhere payment. On-the-spot billing using the hand held device enables 6 lakh customers to receive the bills in time.

**Computerization of Karnataka Appellate Tribunal:** Activities at KAT went electronic resulting in e-enabling status of around 20,000 cases and daily cause lists. Around 18,000 Judgments of KAT are hosted for electronic retrieval.

**Litigant Information System for the High Court of Karnataka:** The Litigant Management System brings in accuracy and transparency in disposing of cases. Display boards located at strategic locations in the High court providing information on cases being heard, enabling citizens to get the case status by SMS / IVRS / Information Kiosks and e-filing of cases are recent initiatives greatly applauded.

**Vahan and Sarathi for Road Transport Department:** The software has been instrumental in issuing Driving licenses and Registration Certificates in smart card which enables enhanced QoS delivery and reliable MIS for motor vehicles in the state. The replication of the data to state and national registries on DL and RC has been initiated. 11.25 lakh smart card based Driving Licences and 10.18 lakh. The project runs the NIC National Vahan/Sarathi software on a PPP model.

**Sachivalaya Vahini - Basket of applications for Secretariat:** 'Sachivalaya Vahini' implemented in 40 Departments of Karnataka Secretariat on a LAN with 1500 nodes, comprises of Letter Monitoring System, File Monitoring System (FMS) , Court Cases monitoring, Document

Management system etc. KIOSK set up in the Secretariat enable general public to track the files/letters. **More than 4 lakh files are being tracked through this system.**

**Computerisation of Karnataka Information Commission (KIC):** With the RTI act being extensively exercised by public, the automation at KIC has been an effective way to disseminate information to the citizen on the RTI applicant by way of SMS messages at every stage in the electronic workflow process enabled in the KIC to process the application. Cause list and judgments published on the web site, SMS and computerized enquiry counters facilitate quick access to the application status using multiple search options.

Other projects implemented by NIC, Karnataka include Scholarship Management Information System for the Social Welfare Department, Online Registration of Fishing Vessels and issue of license (ReALCraft), Online Recruitment System, e-tendering system for the agriculture produce marketing committee (e-mandi), Insurance System for girl child (Bhagyalakshmi), Financial and Stock accounting package for the PDS ( FIST ), Cocoon market Information System (CMIS) - activities related to auctioning in cocoon, Integrated Budget Information System, web applications for different Departments, hosting of results of examinations.

**For further information**

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# Tripura: Focusing on IT Enabled Services

Tripura, a landlocked hilly state, bounded on the north, west, south and south-east by Bangladesh and in the east with Assam and Mizoram, has a tropical climate and the main languages spoken are Bengali and kokborok. Rice is the principal crop followed by oilseed, pulses, potato and sugarcane. High quality timber including sal, garjan, teak, and Gamar are found abundantly in the forests of Tripura. Natural gas based industry, tourism, bamboo based handicrafts, rubber and tea plantations are some of the potential industries of the state.



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CSI Nihilent : e-Governance Special Recognition Award 2009

Edited by  
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**E**QUIPPED with state-of-the art computing and ICT infrastructure facilities, NIC Tripura State Centre was formally setup during 1990s. NIC has established itself as total ICT- solution providers to the Government of Tripura. Along with Department of IT, NIC has drawn specific plans to facilitate and enable various departments to deliver IT enabled services at the doorsteps of common people, thus promoting e-Governance in the state.

**Website** - <http://tripura.nic.in> is the official website of the government and provides information related to agriculture, tourism, industry, handicrafts, culture etc. It also has links related to hospital management systems, job information, government notices and e-governance portal etc.

**Tripura State Wide Area Network:** NIC-NICSI has implemented Tripura State Wide Area

Network connecting 61 POPs covering state, block & tehsil head quarters. More than 1200 horizontal connectivity were already extended from such POPs and are operational with an uptime of more than 98%. All the four NIC districts centres in Tripura are connected through 2 Mbps leased line to NICNET Gateway with the state headquarters.

**Campus & City Area Network:** State of the art ICT Infrastructure was established at New Secretariat Complex, New Assembly House, New High Court Building & State Guest House with an interface to Tripura SWAN, Tripura State Data Centre and to NICNET Gateway for Internet Services. A total of 1500 nodes were commissioned with OFC backbone among the four buildings. Agartala City Area Network was established using OFC, RF with leased line connecting more than 80 major buildings/ offices across the city of Agartala with an interface to NICNET Gateway for Internet Services.

**NIC State Data Centre:** NIC has



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**IN THE STATE OF TRIPURA**, the NIC has been actively participating in various e-Governance Projects in tandem with DIT, Govt. of Tripura. They have done lot of good work in conceiving and implementing in Projects in different sectors, which needs to be appreciated. A few of them are e-Hospital@NIC, e-Suvidha, RuralSoft@Tripura, Energy Billing System, Jami, On-Line TPSC, Vahan-Sarathi, e-Courts, CIPA, SMS Based Election Monitoring System and Agromet services, etc. They have also been assisting the IT Department in implementing a number of e-Governance projects like Tripura SWAN, Campus Area Networks in various buildings/ offices, Tripura State Data Centre, National Portal, SSDG-SP and so on.

At present, the State of Tripura is focusing on delivery of Citizen Centric Services as core infrastructure projects like Agartala City Area Network, Data Centre, Tripura SWAN etc. are ready and operationalised.

We intend to avail software solution from NIC considering domain expertise in Government Sector and continuity of support, including software maintenance aspects. NIC's present model of partnering with industry for sourcing certain activities of software development is the right delivery model for us for accelerated deployment of IT systems. In this endeavour, NIC is expected to play an important role in helping the State to achieve these objectives. I wish the NIC team in Tripura all success in their efforts in facilitating in implementation of e-Governance projects in Tripura.

established 4TB capacity Storage Area Network (SAN) integrated with high end server farm and i-NOC for storage consolidation, providing storage on demand & efficient utilization of computing resources, access control, robust security implementation and Disaster Recovery (DR) site for various e-Gov applications.

### MAJOR PROJECTS

**e-Hospital@NIC** - is a patient-centric, Hospital Management System with a workflow based ICT solution specifically meant for hospitals in government sector. It is an HL7 Development Framework (HDF) compliant and ISO/IEC 9126 certified end-to-end solution for managing processes and services in hospitals including telemedicine services. A generic software, which covers major functional areas like patient care, laboratory services, work flow based document/information exchange, human resource and medical records management of a hospital.

**e-Hospital@NIC Suite** is a web based

solution, developed using Free Open Source Software (FOSS) tools, for managing healthcare service delivery in public hospitals and solution is made available as Software as a Services (SaaS) for accelerated adoption of ICT tools and healthcare standards by large number of public hospitals.

#### KEY FEATURES:

- Conformance to Global Standards: Based on HDF (HL7 Development Framework). Compliant with healthcare standards such as HL7, ICD 10, LOINC, DICOM and many more.
- Electronic Medical Record: An ideal EMR container and clinical data management solution for any kind of hospital.
- Implemented at different health



**e-Hospital@NIC system at Work.**

care institutions like District Hospital, State referral Hospital, Medical College, Telemedicine Centre, Blood Bank and Trauma Centre.

**Energy Billing System (EBS):** A workflow based Revenue and Energy Billing System for Tripura State Electricity Corporation Ltd and all its divisions and sub-divisions. It automated the process of bill generation and revenue management of the cash collected at various collection centres including mobile collection centres in

market places. It has brought qualitative & quantitative change in services with the use of IT at different levels of operations.

EBS, implemented at Electrical sub-divisions, has the facility to record and index the power distribution inventory viz. pole, Transformer, Feeder etc. mapped to each consumer. The system generates meter reading sheets daily which are carried to the consumer premises for recording the current reading. The data is then fed into the system after which it generates the current bill along with arrears, if any.

**Rural Soft@Tripura: OnLine Rural Development Works Monitoring System** was implemented for Engineering wing of Rural Development Department, which is a workflow based solution covering RDD Circles, Divisions and Sub-Divisions on a turnkey basis. The software features are:

- Centralised repository of all requests coming to RDD for works execution.
- All Scheme & Program management workflow, comprising of Estimate Preparation, Technical Sanctions, Departmental Work Order, Administrative Approval, Expenditure Sanction, Scheme closing and RDD Schedule of Works management.
- Stores and material management workflow like Annual requirement gathering, Stores approval, Issue Rate calculation, Stores Requisition & Acceptance, Depositing of Indented value by Treasury Challan, Raising of Store Indent for movement between Division & Sub-Division etc.
- The Finance and accounts workflows like Receipt of Treasury Challans deposited for store materials, Release of Fund from Suspense Account including proposal and Sub-Allocation, Receipt-Verification-Passing of Bills, Placement of Fund, TDS management, Treasury Bill preparation, Management of Bank Accounts

and Cash Analysis and Verification.

**Below Poverty Line [BPL] Survey:**

A software for BPL data entry was developed and implemented for Rural Development Department. Data entry of BPL beneficiaries for all 4 Districts are under progress. The department has initiated BPL Census 2009 for approximately 7, 00,000 families in the state.

**Land Records Computerization -**

Online Mutation is handled by the Jami software designed, developed and implemented by NIC-Tripura. The Jami Ver.3.0 software is ISO certified. The up-to-date land records registry is available on the website <http://tsu.trp.nic.in/jami>. Touch screen based KIOSK services are available at Sub-Divisional level for searching of land information in Bengali. It is one of popular service across the state.

**Tripura Registration Information System (TRIS) -**

The system takes care of various Registration activities like Receiving and serialization of presented documents using intelligent input forms to capture document details, Determination of stamp duty and fee based on document type, generation of receipts, Integrated accounting for Fees and Stamp duty collection, Database support for market value assessment, cross verification with Land Records Database, Capturing of online photograph and bio-metric impression, searching of document, Generation of various Registers, notices, reports and scanning and delivery of documents. Implemented at four Sub Registry offices of Tripura.

**ICDS MIS :**

NIC has designed, developed and implemented ICDS MIS. The Application leverages the strength of the web to build an online history sheet of each Anganwadi center (Template based Daily, Monthly and Yearly Inspection Reports uploaded by the different stakeholders of the ICDS projects). Training, monitoring, quan-

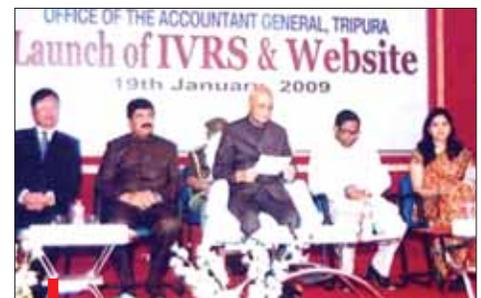
titative ranking and incentives are built around the available information so generated so as to achieve a high quality of service delivery to the targeted group.

**Physically Challenged Persons Information System:**

PCPIS@Tripura, a comprehensive Information System was implemented for physically challenged persons. A Survey was carried out to capture individual details of the disabled persons of Tripura.

The application is used by -

- District Disability Rehabilitation Centre (DDRC) who are authorized to examine, identify and issue disability certificate to a disabled person. Aids and Appliances are provided whose record is captured in the database. All DDRC of the State are using the application.
- Social Welfare Directorate, moni-



Launching of IVRS and website by "His Excellency"

tors schemes for the disabled person and updates the beneficiaries details.

- Education and the Employment Exchange Department.

Various MIS such as number of disabled person with regards to age, disability, sex etc. are generated. Features such as screen reader, audio equivalent of text are some of the features attached to the website interface of PCPIS@Tripura.

**AGROMET:**

Current Weather Data from field offices, over SMS input is deployed and piloted in ICAR Tripura Centre and are being centrally entered by ICAR/ Field Offices. In

association with ICAR, NIC implemented an application software to automate their AgroMet Advisory Services comprising the following functionalities-

**Publishing Met Bulletin:** preparation is automated and displayed over web.

**Forecast:** Capturing of IMD 5 day Weather Forecast Input on Parameters like Temperature (Max & Min), Wind Direction & Speed, Rainfall, Relative Humidity (Morning & Evening) & Cloud Cover.

**Current Weather:** Capturing actual weather data like Temperature (Max & Min), Soil Temperature, Wind Direction & Speed, Rainfall, Relative Humidity, Evaporation, Cloud Cover, Bright Sunshine Hour, Solar Radiation from field offices (Pull SMS/Web Entry).

**Moderated sharing of Archive Weather Data:** Administration of Weather Grouping, Parameters, their Consolidation Logic, Bulletin Periodicity, Forecast/ Current Weather Summary generation logic and Importing of legacy Weather Archive data. SMS linkage, to capture actual weather from the AMFU field offices and deliver objective weather forecast over SMS.

**Transport Computerization :** VAHAN and SARATHI s/w are implemented at JTC and DTOs of Tripura. The old paper based Registration Certificate and Driving Licenses were discontinued. SCOSTA compliant SMART card based Registration certificates and Driving Licenses are issued across the state. Connectivity in all the JTC/DTO offices were established using 256KB VPNoBB.

**e-Courts:** NIC provides ICT support to the Agartala bench of Gauhati High Court. Key functions such as List of Business Information System, including Case Filing, Registration & Case allocation and Orders/Judgments of

the Cases, are being maintained. Cause Lists, Case Status and Judgments are accessible to Litigants, Advocates and General Public.

**Online Blood Donor Information and Blood Bank Status:** The service (<http://tsu.trp.nic.in/blood>) helps citizens to find out the present blood stock at blood banks in Tripura and search for the required blood group. Also citizen can read the FAQs on blood donation and get their queries answered. It's a G2C and C2C application.

**e-Pourasabha :** e-Pourasabha (<http://tsu.trp.nic.in/amc>), a comprehensive e-Governance suite for local bodies was implemented at Agartala Municipal Council. The major components are:

- Tax Collection system
- Touji and other Misc. collections
- KIOSK and web based citizen centric information services for citizens on tax demand
- Static web-site based information on rules regulations, downloadable forms etc.
- Online-demand list and notice generation facility
- MIS reports on demand and collection
- Birth & Death Registration system
- Application receipt and generation of acknowledgement
- Status report over the web
- Certificate generation
- MIS reports and record maintenance

**e-TPSC:** e-TPSC (<http://www.tpsc.gov.in>) for Tripura Public Service Commission, is a process flow based system to automate the steps involved in conducting a recruitment process. The application has facilities for

- Receiving requisitions from various departments for recruitment
- Candidates can apply over the net or Download application form
- Receiving application over computerised counters with appropriate

acknowledgement.

- Short listing candidates on pre-defined criteria
- Subject -wise / Exam-wise grouping of candidates and attendance list generation
- Generating Admit Card and publishing on the web-site
- Entering marks and generating result sheet

**SMS based Election Monitoring System:** Software solution and technical support was provided during last Assembly, Parliamentary and Bye Elections. Electoral Rolls, which are available in Bengali and English, are regularly updated and published on the official website at <http://ceotripura.nic.in> with Unicode based searching facilities. Activities like availability of candidates' information, affidavits hosting, results processing, Randomization of Polling Parties and Randomization of Electronic Voting Machines, Communication Plan etc. were taken care by Election Software Suite.

**IVRS & Online G.P.F & Final Payment Information for State Govt. Employees:** Interactive Voice Response System (IVRS) was introduced at the office of the Accountants General (A&E), Agartala, through which GPF subscribers and Pensioners can obtain relevant information round the clock over phone and access the online system (<http://agtripura.nic.in/>). IVRS and web based online GPF information system was inaugurated by the then His Excellency Sh. Dinesh Nandan Sahay, Governor of Tripura.

### For further information

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# Cloud Computing Infrastructure in NIC Assam

Cloud computing is simply a set of pooled computing resources and services delivered over the web. When you diagram the relationships between all the elements it resembles a cloud. Cloud computing-not to be confused with grid computing, utility computing, or autonomic computing-involves the interaction of several virtualized resources. Cloud Servers connect and share information based on the level of website traffic across the entire network.



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**C**LOUD computing is often provided "as a service" over the Internet, typically in the form of Infrastructure as a Service (IaaS), Platform as a Service (PaaS), or Software as a Service (SaaS). Instead of having to invest time and money to keep their sites afloat, cloud computing customers simply pay for the resources they use, as they use them. This particular characteristic of cloud computing-its elasticity-means that customers no longer need to predict traffic, but can promote their sites aggressively and spontaneously.

#### Lets us take an example:

Let's consider us in NIC which is a large organization. In NIC, the responsibilities with higher officials include making sure that all of our employees have the right hardware and software they need to do their jobs. Let's say buying computers for everyone isn't enough -- we also have to purchase software or software licenses to give employees the tools they require. Whenever we have a new hire, we have to buy more software or make sure our current software license allows another user. It's so stressful that we find it difficult to go with so much of expenditure. Soon, there may be an alternative for people like us. Instead of installing a suite of software for each computer, we only have to load one application. That application would allow workers to log into a Web-based service which hosts all the programs the user would need for his or her job. Remote machines owned by another compa-

ny/organization would run everything from email to word processing to complex data analysis programs. It's called cloud computing, and it could change the entire computer industry.

#### CLOUD ARCHITECTURE

In a cloud computing system, there's a significant workload shift. Local computers no longer have to do all the heavy lifting when it comes to running applications. The network of computers that make up the cloud handles them instead. Hardware and software demands on the user's side decrease. The only thing the user's computer needs to be able to run is the cloud computing system's **interface software**, which can be as simple as a Web browser, and the cloud's network takes care of the rest.

When talking about a cloud computing system, it's helpful to divide it into two sections: the front end and the back end. They connect to each other through a network, usually the Internet. The **front end** is the side the computer user, or client, sees. The **back end** is the "cloud" section of the system.

The front end includes the client's computer (or computer network) and the application required to access the cloud computing system. Not all cloud computing systems have the same user interface. Services like Web-based e-mail programs leverage existing Web browsers like Internet Explorer or Firefox. Other systems have unique applications that provide network access to clients. On the back end of the system are the various computers, servers and data storage systems that create the "cloud" of computing services. In theory, a cloud computing system could

include practically any computer program you can imagine, from data processing to video games.

### IMPLEMENTATION OF PRIVATE CLOUD IN NIC ASSAM STATE CENTER USING EUCALYPTUS

Recently we have successfully implemented EUCALYPTUS for creation of a private cloud in NIC Assam. So far we have deployed an intranet portal on DRUPAL in one of the VM instances ( <http://intranet.assam.nic.in> ) and another instances for various application testing by the DIOs in the districts on RHEL5.0 with JBOSS application server. This instances (Node Controller) are running on a DELL Blade server with 16 GB RAM and 146\*2 GB Hard disks. This was in fact possible with the very helpful guidance provided by Sh C S R Prabhu, DDG and his team from NIC Hyderabad. In Eucalyptus, there are NC (Node Controller), CC (Cluster Controllers) and CLC ( Cloud Controller ), WALRUS, SC ( Storage controller). The physical architecture can be on a single system but logically they can be n-tier. In NIC Assam, we have CLC and CC, Walrus and SC in one front end system and in the back end we have a NC where the hypervisor engines runs for various instances. But from the user end, one has to only access the eucalyptus frontend with the help of the browser like: <http://frontend.systemip:port>. So it means the user can connect to the CC front end with the help of the specific url and then the user has to create an image and then the image needs to be uploaded to the CC.

After that user can run the instances at their own wish.

**NOTE:** this is for the first time to create and run the VM instance without any password. After doing this and you are connected to the VM instances, you can give a root password to the instance. After doing that , you can connect to this VM instance from any system with ssh/putty...

### FEW SUCCESS STORIES

Some of the example of successful implementation of cloud computing infrastructure are Amazon Web Services ( <http://aws.amazon.com> ) , Google Apps, Salesforce.com and Microsoft Windows Azure platform. AWS, Salesforce.com and Google Apps which provide common business applications online that are accessed from a web browser, while the software and data are stored on the servers. Salesforce.com is an easy-to-use Web-based CRM solution for sales, service, marketing, and call centre operations that streamlines customer relationship management and boosts customer satisfaction. Google Apps is a collection of Google applications and utilities such as Web-based e-mail, instant messaging, calendar, word processing and spreadsheets. Amazon's Simple Storage Service, for instance, offers unlimited and inexpensive online storage (\$0.15 per gigabyte per month). AOL provides a service called Xdrive with a capacity of 50 gigabytes for \$9.95 per month (the first five gigabytes are free). And Microsoft offers Windows Live SkyDrive, currently in beta, with a one-gigabyte free storage limit as apart of their cloud computing infrastructure as a Service (IAAS). Amazon web services uses EC2 (Elastic Compute Cloud) whereas Google uses Google App Engine to deliver these services. **But as a framework that is compatible with Amazon's EC2 and S3 interfaces, Eucalyptus can be used with many of the tools that have been developed for EC2 and S3.** In addition to the tools created and officially supported by the Eucalyptus Team, Euca2ools. The following Amazon EC2 command line tools are entirely compatible with Eucalyptus

```
# ec2-api-tools-1.3-30349 (Count: 1058)
# ec2-ami-tools-1.3-26357 (Count: 576)
```

### MYTH ABOUT CLOUD COMPUTING

There are many myths about cloud computing but the most important one is about its security:

#### 1. Is Cloud computing secure?

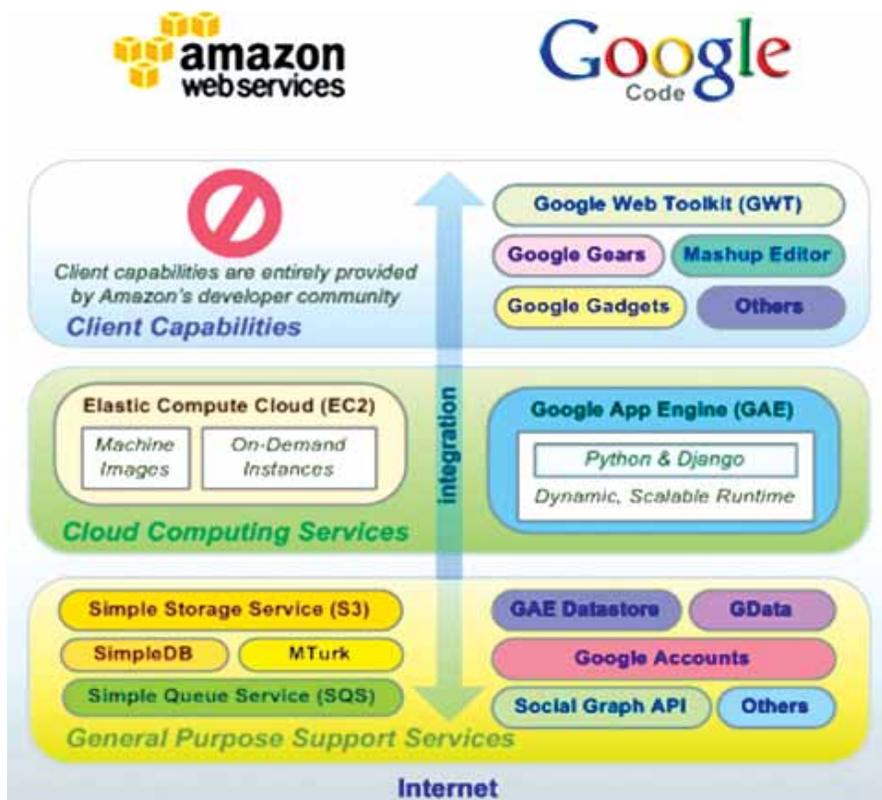
Public clouds are fundamentally multi-tenant to justify the scale and economics of the cloud. As such, security is a common concern. Whereas the traditional security perimeter is a network firewall, the cloud security perimeter now becomes the hypervisor and/or underlying cloud application. So far, security in the cloud has been good, but this is very cloud-dependent and requires a solid design and operational rigor that prioritizes security. Also, handing your data and systems to someone else requires proper internal controls to ensure that not just anyone has access. One has to be sure to ask potential cloud computing providers about security from technical, operational, and control perspectives, as well as what experience they have being stewards of customer systems and data. If the public cloud is fundamentally not secure enough, one can always consider an on-premise cloud, virtual private cloud, or some sort of hybrid cloud solution that allows you to maintain the level of security you require.

#### 2. Can we move everything to CLOUD computing?

Not all applications are suitable for cloud computing. While the Cloud is here to stay, it will not replace traditional hosting or on-premise deployments, but rather complement them. There will always be situations where security requirements, flexibility, performance or control will preclude the cloud. In those cases, a hybrid solution involving both cloud and either traditionally hosted or on-premise servers may make sense.

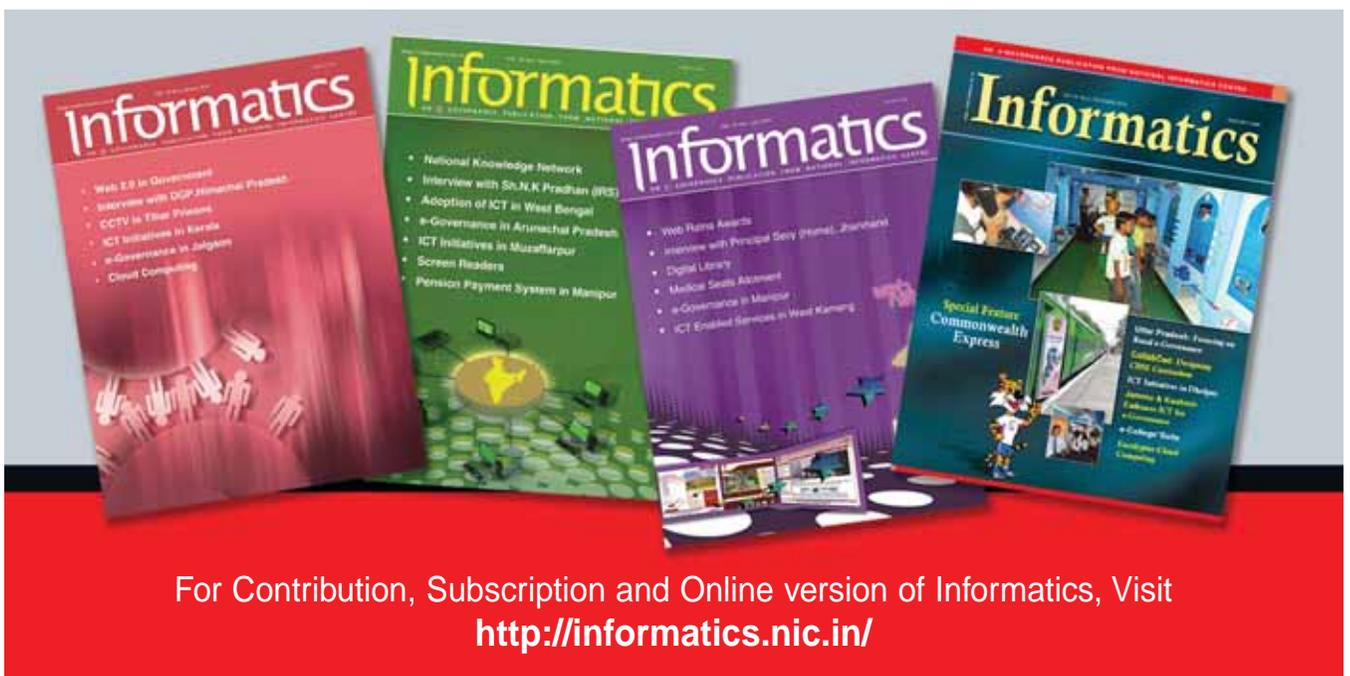
Therefore what is the future of Cloud Computing? There's also the

## Comparing Two of the Leading Software Platforms In The Cloud



Source: <http://www.nilkanth.com/?s=saas>

conspicuous issue of constant connectivity: a repository of online data isn't useful if there's no Internet connection to be had, or if the signal is spotty. It is a technical challenge of providing service to Web applications without interruption. A unified theory of cloud computing isn't as simple as writing software, however, there are a number of social and legal issues that need to be dealt with like Privacy of data. Moreover, there are copyright ramifications to cloud computing. So there are many issues with CLOUD computing. But certainly there are a number of ways of addressing it and we must try to find out solutions to all these to make CLOUD Computing a success in the near future.



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# Mobile enabled citizen services through 2D Barcodes

Barcode is used to encode data for variety of purposes. 2D barcode can be used in e-governance applications to benefit the Government and the citizen at large. The 2D barcode is readable using mobile camera, web camera and scanners alike. As the mobiles have the GPRS/3G connectivity to Internet, the barcode encoded with the details of any ID card, driving license, ration card, certificate etc. can verify the details through the Internet. Thus anywhere, anytime service can be enabled to the citizen to know the status of the transaction.



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**B**ARCODE is meant for encoding data in an image which can commonly seen on the cover of all products. Scanning of barcode with barcode reader reveals the detailed information on particular product. Presence of barcode has eradicated the presence of counterfeit to a large extent. One dimensional barcodes, which has been in use since mid 1970, a combination of bars and spaces, store data in a series of lines of various width. Each bar and space represent different character. Here the information are stored horizontally.

Two dimensional barcodes are represented as a image with different geometric patterns such as squares, dots, and hexagons where storage happens both vertically and horizontally. Scanning and decoding of this type barcode needs 2D compatible scanner. 2D barcode technology should be considered as a complement to traditional 1D scanning technology and not its replacement.

One of the amazing aspects of two-dimensional symbols is their potential durability. To sabotage the readability of a conventional 1D symbol, one only has to add another bar to the beginning or end of the symbol or draw a line through the symbol, parallel to the stripes. This throws off the checks and makes the symbol unreadable. By comparison, many degrees of redundancy can be built into a 2D symbol. While it makes the symbol somewhat larger, the remaining symbol is remarkably secure. Reports indicate that inspite of minor deliberate attempts on 2D

**Today the usage of 2D barcode is being exploited by the marketing segment and the manufacturing industry. 2D barcode can be effectively used as a low cost tool for knowing the current status of their request submitted to Government, eliminating forgery, locational information in open and secured way for variety of applications which touches Government, Enterprises, Business people and any citizen.**

symbols with holes, black marker and tearing, the symbol remains readable.

Though there are so many symbolologies such as Maxicode, Aztec, Watercode, Minicode etc, 2D barcodes with open standards are preferable for its reliability and interoperability. Some of the examples for 2D Matrix symbolologies of open standard are detailed below.

**DataMatrix:** DataMatrix is a 2D matrix code with modules arranged either in a square or rectangular pattern. The symbol consists of data regions which contain modules set out in a regular array. Each data region is delimited by a finder pattern, and this is surrounded on all four sides by a quiet zone border (margin). Each symbol has even number of rows and even number of columns. The size of square shaped symbols ranges from 10X10 to 144X144 and ranges from 8X18 to 16X48 for rectangular shaped symbols. Datamatrix 2D barcode

ISO/IEC 16022:2006 specification can be obtained from  
<http://datenfreihafen.org/projects/iec16022.html> (GPL)  
<http://www.libdmtx.org/> (LGPL)

**PDF417:** Developed in 1992 by symbol Technologies, PDF417 is a multi-row, variable length "stacked" symbology. It is composed with a stack of 3 to 90 rows. A PDF417 symbol consists of 17 modules arranged into four bars and four spaces. PDF417 uses Reed Solomon error correction. In order to recover the complete content of the document and genuineness, linear barcodes such as PDF417 is widely used with encryption. The rectangular length and width of the barcode will increase based on the size of the encrypted data.

**The QR Code:** The Quick Response Code (QR Code) is yet another 2D barcode where the information stored can be a text, URL or other data. It is called as Quick Response Code because they enable fast data access. The symbol of QR code consists of black modules arranged in a square pattern. It also includes three levels of error detection. The squares in the bottom left, top left, and top right corners are locator patterns.

QR Code ISO/IEC 18004:2006 spec-



Varying content encoding with 2D barcodes

ifications can be obtained from  
[http://www.iso.org/iso/iso\\_catalogue/catalogue\\_tc/catalogue\\_detail.htm?csnumber=43655](http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=43655)

**TWO DIMENSIONAL BARCODE USAGES**

The content that is encoded in the 2D barcode can vary depending on the requirement. It can contain an URL so that when read through mobile camera one can go online and reach the website to know more details. The content can be an offline content having the serial number, name card etc. details generally used in the manufacturing industry to identify the product, batch number etc. The content can have the latitude and longitude, the GPS coordinates to point a location.

**ONLINE METHODS**

The usage can be broadly classified into online and offline usages. Online

methods contain either an URL or encrypted ID which can be read using the Javamidlet on mobiles or Client/Applet using a web camera. In case of mobiles the server can be reached through GPRS/3G and in case of Client/Applet using a web cam the server can be reached through LAN/WLAN/SWAN/broadband. In case of URL the browser becomes the client program to fetch the details and in case of encrypted-ID, there will be a client program/Applet to decode and connect to the server and give the necessary information.

The encryption can be done in variety of ways such as direct URL+ID, Direct URL+Encrypted ID, Encrypted ID, etc. Accessing rights also differs for each method. Few methods are open for the entire citizen, few for authenticated citizen, some only for department officials, etc. The verification devices to be used are mobile camera, Desktop/laptop connected with web camera, flat-bed scanner, and barcode reader.

**OFFLINE METHODS**

Print copy content authentication - Offline -- Manual method/Automated method are the different methods used here and the accessing rights goes to Closed User Group (CUG) of Department officials. The verification devices to be used are mobile camera, Desktop/laptop connected with web camera, flat-bed scanner, and barcode reader. Again offline methods contain the encoded information either with encryption or without encryption. Inventory slips, ID cards, Manufacturers details etc. are the

The Comparison on the three open standard barcodes is placed below

| 2D Barcodes   |               | QR Code   | PDF417           | Data Matrix         |
|---------------|---------------|---|------------------|---------------------|
| Type          |               | Matrix  | Stacked Bar Code | Matrix              |
| Data Capacity | Numeric       | 7,089   | 2,710            | 3,116               |
|               | Alpha Numeric | 4,296   | 1,850            | 2,355               |
|               | Binary        | 2,953   | 1,018            | 1,556               |
|               | Kanji         | 1,817   | 554              | 778                 |
| Main Features |               | Large capacity<br>small printout size,<br>High Speed scan | Large Capacity   | Small printout size |



### Decoding 2D barcodes using mobile camera

(HCCBTM) which can have three times the density of PDF417/DM is used for high capacity requirement.

### APPLICATIONS OF 2D BARCODE TECHNOLOGY

The applications such as land records, telephone connection, water connection, passport, ration card, election ID etc. can be encoded in the 2D barcode. Some of the applications implemented using 2D barcode with the support of NIC, Tamil Nadu are listed below.

**a) Kalaingar Vettu Vasathi Thittam Beneficiary identity:** A secured encrypted ID is used as a 2D barcode to eliminate forgery of allotment orders of Government of Tamil Nadu. Here barcodes are encrypted so that no one other than department people can read it.

**b) E-district Citizen Certificates:** To eliminate forgery, a secured encrypted ID is used as a 2D barcode on certificates like Community, Nativity, No graduate, Income and Deserted woman.

On reading the 2D barcode at left hand side of each certificate the user can trace out all the information about the citizen updated earlier in the particular URL.

**c)** Usage of 2D barcodes also benefited the Micro Small and Medium Enterprise department which deals with small scale industries, especially works on authenticity of license issued to the small scale entrepreneur.

**d)** A proof of concept has been demonstrated to help the traffic police to identify the counterfeit license. The moment the traffic police scans the 2D barcode on a driving license the details displayed from the server proves the authentication of the license. The application also facilitates to book an offense on the road using the mobile and the offense details are stored on the server for any time analysis/monitoring.

**Acknowledgement:** *K Sathyamoorthy, Junior Research Fellow, Tamil Nadu, k.sathyamoorthy@nic.in*

know applications using the offline methods.

The color 2D barcode can be deployed for high capacity online and offline requirements. The color 2D barcode can have photos, images, digitally signed information etc. Color 2D Barcodes are also in existence for offline use. High Capacity Color Barcode

## UPCOMING ICT EVENTS

### International Conference on e-Government and e-Governance

Ankara, Turkey

11th March, 2011

<http://www.icegeg.info/>

### 2011 International Conference on Control, Robotics and Cybernetics

New Delhi, India

19th -20th March, 2011

<http://www.icrc.org/>

### 25th Skoch Summit - Reinventing India: Shifting to Demand Side Governance

New Delhi, India

25th March, 2011

[http://www.skoch.in/index.php?option=com\\_content&view=article&id=1212&Itemid=1678](http://www.skoch.in/index.php?option=com_content&view=article&id=1212&Itemid=1678)

### International Conference on Computer Supported Education and E-Learning

Katmandu, Nepal

1st -2nd April, 2011

<http://www.ols.org.np/iccs2et2011/>

### Conference for eDemocracy 2011

Krems, Austria

5th - 6th May, 2011

<http://www.donau-uni.ac.at/en/department/gpa/telematik/edemocracy-conference/edem/vid/14978/index.php>

### 7th International Conference on Web Information Systems and Technologies

Noordwijkerhout, Netherlands

6th - 9th May, 2011

<http://www.webist.org/>

# Jhansi: Leading From the Front

**'Leading from the front' is synonymous with Jhansi, be it the First Freedom Struggle of India or the modern day ICT based Governance, Jhansi has been the torch bearer with earnest dedication. Centuries have moved from twentieth to twenty first but the will to provide good governance to people of the region is still undiminished as shown by the district administration led by Sh.. Raj Shekhar, IAS & District Magistrate, Jhansi.**



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Edited by **Anshu Rohatgi**

**J**HANSI is also known as the Gateway to Bundelkhand and at present it is a Divisional Commissioner's Headquarter including district Jhansi, Lalitpur and Jalaun. With a total population of 17.45 lakhs, about 840 villages, 8 blocks and 5 tehsils, the district has always established high standards of service right from the days of the legendary Rani Lakshmi Bai, the famous Queen of Jhansi to the present day administration. Their efforts have not only been recognized at the state level but have also been applauded at the national level with awards such as 'CSI - Nihilent e-GOVERNANCE Award 2009-10 for Excellence under the District category' & the 'NASSCOM Social Innovation Honours 2010' by Nasscom foundation. Both these awards recognize the passion and commitment for e-Governance of the district administration.

## **Jhansi Jan Suvidha Kendra**

Jhansi, has developed and implemented a unique system of grievance redressal in form of Jhansi Jan Suvidha Kendra (JJSK) which was launched for the citizens on 10th June, 2009. The system has used modern technology to innovate the existing manual systems and provide a citizen friendly approach in terms of reach, cost, time & effectiveness. In the last 18 months, the project has undergone many technical innovations and administrative reforms to incorporate fool proof mechanism of quality cross check and monitoring leading to efficient administration and corruption free society. Above all it ensures the satisfaction of the

aggrieved persons thus strengthening the concept of e-accountability and e-democracy.

## **How it works**

JJSK provides round-the-clock (24x7) platform to the citizens for filing their grievances. Citizens just need to dial a pre-designated toll-free number to lodge their complaint irrespective of place and time. The grievance is registered online and details of the grievance are also recorded automatically as an audio file. Every

“ **An excellent example of public service, dedication, devotion and compassion for common man. I am sure this step will give way to a long-long journey. Keep it up. Best Wishes...**

**Sh. Shankar Aggarwal,**  
Joint Secretary, D.I.T, GoI,  
New Delhi

complaint is assigned a unique complaint number and category depending upon the severity of the complaint. The redressal time of the complaint is based on this severity and ranges from 24 hrs to 7 days maximum.

All the grievance are marked to the concerned officer for necessary action as soon as they are received and various electronic modes are used to inform the complainant & official that a grievance has been received.

As soon as grievance is registered

in the database an SMS is automatically triggered on the mobile no of the aggrieved person bearing details of complaint number, category, officer to whom the complaint is marked and target date for disposal. Simultaneously, an SMS is also sent to the concerned officer bearing the details of the complaint and mobile number of complainant. The concerned official is also intimated telephonically and a physical copy of the complaint with severity and other details is provided through Fax/ Post/ Special Messenger for immediate action. This electronic transfer of complaints has played a critical role in saving valuable time & cost both for the citizen and the state government and the MIS created helps in tracking the complaint till its disposal.

### JJSK Management

Senior district officials, administrative staff and computer operators are all assigned duties in JJSK to run and monitor the project in shifts of eight hours each on voluntary basis. MIS based monitoring is a critical component of JJSK. The MIS keeps track of all complaints and SMS are automatically generated by the system when a complaint is not disposed within the stipulated time. One SMS is automatically triggered on the mobile of the officer prompting him about the delay while another SMS is sent on the mobile of the complainant informing the delay. The duty officers at JJSK also verify each and

every disposal report by calling the aggrieved person and taking his feedback for the same. In case of dissatisfaction, the concerned officer is asked to look into the complaint again. If the complainant still remains dissatisfied with the disposal, the District Magistrate/ Chairman JJSK calls him in weekly monitoring meeting for a face-to-face interaction with the concerned official. The disposal details are entered in the software only after satisfaction of the aggrieved person and SMS are sent to both the complainant & the official at the closure of the complaint. Besides this, daily one SMS is automatically triggered on the mobile of concerned officers and administrative team of JJSK informing them about the status of complaints concerning their departments and the pending status.

### Status of JJSK

The disposal rate of complaints received through the system is around 96%. Till December 7th, 2010 a total of 26,578 complaints were received by JJSK out of which 25,500 have already been disposed. The default rate (about 2.4%) is quite low and shows the determination of the district administration.

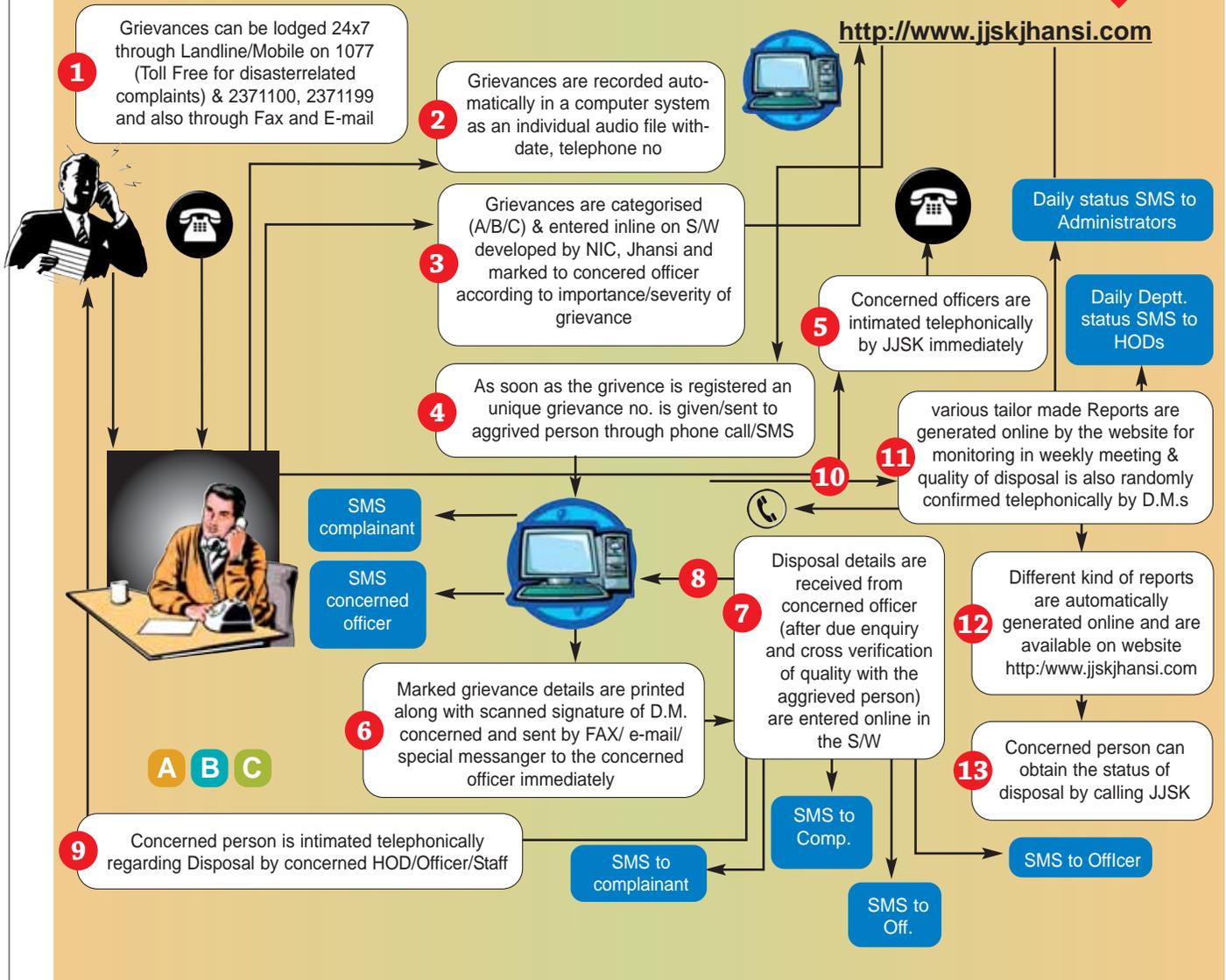
Government of Uttar Pradesh has decided to implement the Jhansi Jan Suvidha Kendra model of Grievance redressal in all the districts of the state and NIC, U.P. State Unit has already developed the web-based application. Very



Sh. Raj Shekhar, IAS  
District Magistrate, Jhansi

To promote e-Governance and improve delivery of various citizen services using ICT District Administration with the technical support of NIC District unit has taken several initiatives. Moreover, all Government offices have been asked to carry out necessary process re-engineering in order to simplify Government procedures to make them suitable for an efficient and transparent delivery of public services through use of available ICT tools.

**JHANSI JAN SUVIDHA KENDRA (JJSK) DATA FLOW DIAGRAM**



soon the new system will be launched for all the districts of Uttar Pradesh.

**OTHER MAJOR PROJECTS**

NIC, Jhansi has made remarkable achievements in implementation of various other e-Governance projects. However, the major focus of all these projects have been on delivery of government services in an easier and efficient manner to the citizens of the Bundelkhand region.

**Single Window System:** Single Window Systems have been implemented at District and all Tehsil

Headquarters. Different types of certificates such as Income, Caste and Domicile are being generated using the application. The complete detail of the applicant and the certificates issued is available on the web for verification purposes.

**UP State Wide Area Network (UPSWAN):** Jhansi was one of the first few districts to implement SWAN. All the tehsils and blocks have been connected to the District SWAN PoP and various Government offices have been provided horizontal connectivity within the collectorate campus and outside.

Many other projects such as distribution of computerized Khatauni (Record-of-Rights) from Tehsil Computer Centre, Transport Computerisation including Registration, Fitness, Permit, Taxation and digital photography for issuance of driving license, Treasury Computerisation, Property Registration system and many others have been implemented in district Jhansi. These projects have certainly changed the citizen-government interaction and made these services available to the common man in a transparent and simple manner.

# Tirunelveli: A pioneer District in e-Governance implementation

Tirunelveli District is one of the oldest and biggest districts in Tamil Nadu State with 11 Taluks and 19 Developmental Blocks as its administrative units. The District has a large number of educational institutions, hence, the title "Oxford of South India". In spite of its traditional way of administration, Tirunelveli leads the way in implementing e-Governance projects for various Departments of the District.



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**N**IC Tirunelveli District Unit was established in August 1988 and a couple of years back it has been shifted to a spacious and renovated office in the new Collectorate premises. Since its inception the District Unit is a pioneer in implementing many successful e-Governance projects.

Edited by **R. Gayatri**

The following is a glimpse of successful e-Governance initiatives of NIC, Tirunelveli District Unit:

**Pension Disbursement and Management System:** The monthly Pension Disbursal and Management System is successfully implemented for the last 20 years. The System is implemented in 11 Sub-Treasuries of the District and it is replicated in many other Districts of the State. Details related to more than 30,000 Government pensioners are maintained in the system every month. Some new initiatives in this project are:

**e-Pension:** From the month of November 2008, all the pensioners of the District have been benefitted by the introduction of e-Pension. Under the URL <http://www.nellai.tn.nic.in>, using the option "Know Your Pension", the pensioner may know his/her full pension particulars.

**Annual mustering of Pensioners electronically (e-Mustering):** From the month of April 2009, the pensioners have been benefitted by the introduction of e-Mustering system. The new system provides the following advantages:



**Dr. M. Jayaraman IAS., District Collector inaugurated the m-Pension Project**

- On the spot mustering of pensioners by referring to the electronic photo images on the screen
- The waiting time for pensioner is reduced drastically from 30 minutes to 3 minutes.
- Issuance of Certificate on a pre-printed stationary, on the spot
- Keeping of 34,000+ pensioners images on the database.

Due to the new system, approximately 85% pensioners mustered their presence within a short span of 2 months.

**Monthly pension particulars through mobile (m-Pension):** The pensioners may know their monthly pension particulars on the mobile handset available with them, by sending an SMS to a dedicated mobile number which is attached to the SMS Server. A cost effective SIM Card is used for this purpose. Since its commencement more than 18000 pensioners received their Pension particulars to their Mobile using this innovative service.

**e-MO Software :** Tamil Nadu Government is granting monthly maintenance grant to the Differently

Abled persons - with Mental Retardation, Cerebral Palsy, Autism and Multiple disabilities. The Money orders were earlier sent through conventional mode which took a long time for delivery.

Similarly Department of Revenue, Tirunelveli is sending Money Orders to beneficiaries under Indira Gandhi National Old Age Pension Scheme and Other beneficiaries of State Schemes. As on date 47,173 pensioners are getting pension under the category of Indira Gandhi National Old Age Pension, Widow Pension, Destitute Widow Pension, Destitute Agricultural Labourers Pension, Physically Handicapped Pension and Unmarried Women Pension in the District.

To speed up the work of pension disbursement a Government Process Re-engineering (GPR) strategy has been evolved. The "e-MO", application soft-

Grievances Petitions is made ON-LINE since August 2009. The ON-LINE GDP System was implemented horizontally in 40 geographically different locations like District Collector's Office (7 counters), Revenue Divisional Offices, Taluk Offices and Panchayat Union Offices. On every Monday, the petitions are registered throughout the District by these 40 specially arranged counters in the District. The Line Department and its offices available in various locations in the District can also feed the reply for the Petitions concerned from any location using an Internet Connectivity.

**Information Kiosks in 425 Village Panchayats:** All 425 Village Panchayat Offices in this District have been recently sanctioned computers, laser printers, Broadband/WLL based internet connectivity and other supporting computer accessories at an outlay of Rs. 2.5 Crore. In order to provide various e-Services for the benefit of rural public, student community and the un-employed youth in the rural region, an integrated web enabled application has been designed for the use of all 425 Village Panchayat Offices in this district.

**OTHER APPLICATIONS**

**Tamil Nadu Infosystem on Land Administration and Management (TAMIL-NILAM):** TAMIL-NILAM has been implemented in all 11 Taluk offices. It contains data related to more than 18 lakh land parcels and 20 lakh land owners. More than 5 lakh Land Ownership certificates have been issued through the system since its inception in the year 2000. Using the vertical connectivity of Tamil Nadu State Wide Area Network (TNSWAN) up to all 11 Taluk Offices, the locally updated data is immediately replicated to the State Server, which is further disseminated to the public, using the web enabled services of TAMIL-NILAM (Any Time / Any Where Land Records).

**Electronic File Processing System:**

25 Sections and 15 other Offices which are located in the Collectorate new building are now connected with Collectorate Local Area Network. Using the existing LAN connectivity, a web enabled application - Electronic File Processing System (EFPS) is under use by all these departments since January 2010. All the files including Letters, Memo, emails, Documents etc., are to be maintained by the number generated by the EFPS System for all its correspondence.

**Various other Databases & Projects:** VAHAN and SARATHI Project for Transport Department are under use successfully in 2 RTO Offices and 3 Unit Offices in this District. The District level databases like BPL Survey, Census, Animal Husbandry Live Stock Census, Ration Card Database, RSBY, Rain Fall Data etc., are available.

Technical support is also extended for the frequent Video Conferences, General Election, Local Body Elections, AgmarkNET, ConfoNET Project, Government Job-fair, dissemination of Examination Result, Disbursement of Government Scholarship for SC/ST and BC College Students.

The success of innovative e-Governance activities is mainly due to mutual co-ordination and co-operation between NIC and all the user departments. District Collector has awarded DIO and DIA with a Commendation Certificate during the Independence Day Celebrations of 2009. It has been an incentive to strive further as a team towards good e-Governance.



Hon'ble Speaker of Tamil Nadu Assembly Sh. Avudaiappan is inaugurating the "Information Kiosk"

were enabled the office to send the same monthly grant and the monthly pension by electronic Money Order (eMO). The newly designed "Data Conversion Engine", automatically converts the beneficiary database into XML format, which is required by Department of Post for booking the money order electronically.

**ON-LINE Grievances Redressal System:** Management of Public

**For further information**

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# Ganjam: Pioneer in e-Governance

Ganjam district is named after the Old Township and European fort. The name Ganjam comes from the word Gan-i-aam which means Granary of the World. It is spreading over the geographical area of 8070.60 square km. in Odissa. There are 22 blocks, 475 Gram-panchayats, 18 Urban Local bodies, 3229 villages, 29 Police Stations and 13 Assembly Constituencies. The district has played a great role in the political scenario of Odissa as four Chief Ministers of Odissa belong to this district. NIC is playing a major role in empowering the rural masses by spreading ICT based information & services.



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edited by **R. Gayatri**

## MAJOR ICT PROJECTS IN THE DISTRICT

**Web-GIS:** The web based GIS system has been developed using open source technology that facilitates Browse Map, Query Map and Thematic Map. The unique step taken is to incorporate the NREGA data with photographs over Block-GP-Village maps. GIS system has been widely used during Parliament & Assembly Election for monitoring critical booths, generating Constituency wise booth maps with road network for election party movement. System has been used for disaster management as the flood / cyclone prone maps are generated with shelter centres & communication facilities. The database comprises of 147 parameters covering various important sectors of all villages.

## Online Character & Antecedent Verification

The character and antecedents Verification report (CAVR) of potential employees is required by the employer - spanning from GOI and various state governments to defence and public sectors. The District Superintendent of Police, DIG (Intelligence) and Collector of the district where the individual is residing issue the verification report. The application has been implemented for monitoring of requests received by the collectorate for CAVR in both civil and defence category and status thereof. The role based application reminds for pending cases and allows updating the reason of pending / other status of the application.

Applicants can know the up-to-date status. The implementation of the s/w has drastically reduced the pending cases, which ultimately helps to trim down the waiting time & both-eration of the new recruits to join in their services.

## Effective MGNREGA Monitoring System fetch National Award for Excellence

The district has been recognised by GOI under the Scheme of "Award for Excellence in Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)". Collector received the award in the annual function held for commemoration of completion of the fourth year of the commencement of MGNREGA at the Plenary Hall, Vigyan Bhawan, New Delhi on 2nd February 2010. Hon'ble Prime Minister Dr. Manmohan Singh and Chairperson of UPA Smt. Sonia Gandhi have distributed the award. This has been possible due to effective monitoring of the scheme using MGNREGA portal.

The uniqueness added to this monitoring process is the "NREGA Help Line". Citizen can give complaint related to NREGA work over



Sh. V. Karthikeya Pandian receiving the award from Hon'ble PM Dr. Manmohan Singh and Chairperson of UPA Smt. Sonia Gandhi

N.I.C. Ganjam district unit has been playing a vital role in providing ICT support to district administration and other offices of the district since 1988. NIC Ganjam is equipped with 34 Mbps STM line connectivity, VSAT, Video Conferencing facility, Collectorate LAN etc. STM Line connectivity has been provided to all major Post Offices, Revenue Divisional Commissioner's (RDC) Office, RTO office etc.

**Revenue Monitoring from Sairat Sources**

Sairat, Auction Sale of Public Property, is a major source of revenue. Types of sources include Stone / Murom Quarry, Sand bed, Fishery, Orchard, Ferry Ghat etc. The application so developed monitors village wise Sairat sources, year wise auction details, revenue derived from thereof. Portal displays source details & auction dates for wider publication. Based on the auction prices of last 3 years, the upset price for the current year is automatically calculated.

**C.M. Grievance Monitoring System (e\_Abhijoga)** facilitates citizen lodging the grievance at anytime from anywhere to CM and obtain the up-to-date status.



**SH. V. KARTHIKEYA PANDIAN**  
I.A.S,  
Collector & District Magistrate, Ganjam

It gives me immense pleasure to inform that N.I.C Ganjam plays a vital role for spreading informatics culture in Ganjam district by designing, developing and implementing various e- Governance projects to make the administration citizen centric. I appreciate the active support of Sri S.C. Misra, DIO (Scientist-D) and Sri R.K. Das, DIA (Scientific Officer) and hope for continued motivated performance in the future.

**Online Paddy Procurement System** facilitates data entry from the paddy procurement centres setup in GPs. 361 Millers, 475 Paddy Purchase Centres, nearly 103000 farmers have registered over the portal and transaction of Rs.177 crore has been made last year.

**Planplus software** monitors Backward Region Grant Fund scheme. The District Plan and Action Plan are

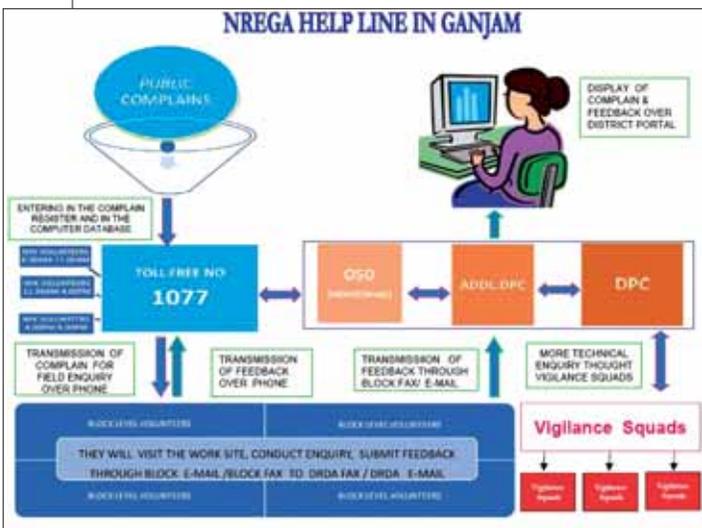
implemented.

**Appreciations:**

The technical support during the visit of His Excellency Honourable Ex-President of India Dr. APJ Abdul Kalam has been highly appreciated. Honourable Chief Minister Sri Naveen Patnaik has given "Certificate of Appreciation" to NIC officials for the "e-Gram" project. The paper on GIS presented by Sri S.C.Misra, DIO, Ganjam in the International Conference on e-Governance held in I.I.M., Bangalore was well appreciated.

**For further information**

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toll free number or through volunteers available at various locations. The complaints are entered and a reference number is given to the complainant. Based on the nature of complaint it is passed on to the Block level volunteer or to the supervisory officer for enquiry. The enquiry report is reflected over the database and accordingly decision is being taken by appropriate authority. The complainant using the reference number can ask for details of action taken after 48 hrs.

being generated financial year wise. Ganjam district has been selected as pilot district for the implementation of two important NeGP Mission Mode Programmes i.e. e-District and e-PRI. Besides, several National and State level projects like Land Records, Vahan & Sarathi for Transport, AGMARKNET for RMCs, MPLAD/MLALAD for district planning unit, **Computerisation of Recruitment System, Automation of N.S.A.P. schemes for Rural and Urban** etc. have been successfully

## my cpf : Singapore

**Facilitating a secure** retirement is important when global economic uncertainties are so high, my cpf of Singapore, has responded to the people's needs. To serve more than 3.3 million members who transact with Central Provident Fund Board (CPF) more than 43 million times yearly, my cpf has been introduced for meeting and continually exceeding customers' expectations for provident fund related issues. Citizens get the information they need to make informed decisions about their retirement planning at different stages of life, using any medium of their choice.

With the innovative use of ICT Citizens can self-serve via multiple channels and transact 24 hours a day, regardless of their location, anytime, anywhere, using their preferred platform. It is also accessed through mobile. my cpf provides a platform for non-IT users as well as IT savvy. In fact, this platform covers every segment of the population by providing a variety of channels based on "Different Strokes for Different Folks" approach to address different needs. Online quizzes e.g. "IM\$avvy Financial Literacy Quiz" and "CPF Savviness Index (CSI) Quiz" have been introduced to younger generation for better understanding of CPF.

ICT has been instrumental for e-services provided by my cpf. A range of services are: e-Counters, e-Lobbies, e-Ambassadors, e-Appointment, Biometric e-Counter, Islandwide Kiosks, iCARE, m-Ambassador Service, e-Helpdesk, My e-Concierge, Tell Us Once, Enhanced Ask Us, Social and New Interactive Media, Mobile Application, SAM, iNETS. my cpf also bridges the digital divide by introducing biometric e-counter for the elderly. It presents possibility for user to change font size and get automatic voice reading of the text, biometric log-in for elderly.

**For information: log on to <http://www.cpf.gov.sg/>**



## ACCESS: Wisconsin

**Wisconsin Department** of Health Services (DHS) created a new service delivery for its social service benefit programs by developing ACCESS, an integrated, web-based, multi-lingual self-service portal. The portal is user friendly enabling users in receiving and managing social service benefits. It also enables citizens to determine if they are potentially eligible for various social services programs. They can check the status of their benefits through individual accounts, apply and renew for benefits via an online application, and report changes to their information. ACCESS enables community partners to assist customers in applying for and maintaining their benefits.

Citizens can access to the various programs of this web based application any-

time. The system has been influential in raising awareness among the citizens regarding the various programs that are available for them. It has increased the member participation in various social service programs by simplifying the process to apply for and retain services and by reducing the stigma associated with applying for and receiving public assistance.

ACCESS provides services to all low income people including children, youth, men, women and seniors equally irrespective of the age, gender, origin, physical or mental disabilities. For the welfare of the citizens, various programs have been designed to cover people of all ages and groups. When citizens apply for some or all of these programs online, based on the information provided by them in their application, the web pages are customized to collect only the relevant information that are required to determine their eligibility in those programs. Thus, it is has also simplified the data collection and made it easy for the citizens to apply for programs online.

The simple and very easy to use website has given a positive experience to the citizens. The website is also accessible to physically disable people. ACCESS consists of 8 primary modules: Am I Eligible; Check My Benefits; Apply for Benefits; Report My Changes; ACCESS for Partners and Providers; ACCESS Fee Payment; Renew My Benefits; HNA/HMO Selection. Interactive features are customer-oriented e.g. "Am I Eligible" section of the portal is self-learning and provides short interactive guidance for all.

**For information: log on to <https://access.wisconsin.gov/>**

## UYAP: Turkey

**National Judicial Network Project (UYAP)** is an e-justice system developed in order to ensure fast, reliable, and accurate judicial system. Developed by IT Department of the Ministry of Justice of Turkey, all judicial units are fully equipped with computers, case and document management software and other updated hardware to access sources such as legislation, case law, bulletins and circulars.

E-signature infrastructure used paves the way for saving costs, time and labour force in judicial processes. The

other important technological contribution is the usage of "video recording" and "video conferencing systems", set up in 225 heavy criminal courts all over the Turkey. Now, any of the witness, victim or offenders who live far away from the court, even in different continents can be questioned. It also facilitates better access to justice for the disabled people, allowing them to defend their rights without going to courts.

The other extraordinary feature is the SMS information system. As soon as judicial authorities make any legal action with their roles in UYAP, parties are automatically informed by a SMS. Even, citizens are given the possibility to check their cases without time and location restrictions ensuring full transparency in legal proceedings. Expenses of bureaucracy and postal costs are reduced. Judges can reach to the system by VPN from their houses with their laptop, facilitating their preparation and research for trials and the writing of judgments. Overall, it can be said that UYAP covers all judicial process and units and effectively meets all the requirements of judicial proceedings enabling paperless office environment.

**For information: log on to <http://www.uyap.gov.tr> & <http://www.sms.uyap.gov.tr/english/>**



### Department of Mining & Geology, Govt. of Meghalaya <http://megdmg.gov.in/index.html>

The website of Department of Mining and Geology, Govt. of Meghalaya is all about exploring mineral wealth of Meghalaya and inculcating scientific appreciation of mining. The websites highlights the activities and functions of the department and gives detail information on the state's geological features, mining scenario, mineral policy and industrial potentiality. The content rich website also caters to a slew of other information especially on services offered by the department like granting prospecting licenses/reconnaissance permits, granting mineral leases, providing assistance on mineral development activities etc. The website also publishes notifications, tenders and news events regularly. A photo gallery and video gallery, and RTI annexure are also navigable. Overall the website is full of informative from G2G and G2B perspective.



### TJ's- Tihar jail Initiative <http://tihartj.nic.in>

A chain of consumer goods, produced by the inmates of Tihar jail, are all set to catch global attention with the prison authorities deciding to promote its 'TJ' brand online. Customers who want to know more about the Tihar jail products can visit the website <http://tihartj.nic.in>. The website focuses on bringing out the creativity of the prison inmates along with providing financial assistance to the convicts and their families by centralizing their energy towards productive work. The products showcased include handlooms and textiles, apparel, furniture, mustard oil, paintings and paper works. This initiative from the jail authorities will not only help to promote the products nationally but also internationally. A person who wants to avail these products can contact directly to the authorities at a very reasonable price than their substitutes. This initiative is helping in making the city crime free by ensuring they are shown the right path during their incarceration. The website is aesthetically designed with clean layout and efficient navigation pages.



### Defence Research and Development Organization <http://www.drdo.gov.in>

Engaged in research of new technologies for defence and combat, the website of DRDO is one of the most frequently visited websites. The bilingual official website of the agency is completely dedicated to nation building and details about the organization and its partners in academic, industry and research boards. The areas of military technologies which ranges from aeronautics to electronics and to advanced computing, with which DRDO is working with are being furnished with proper and authentic details. DRDO has a network of 52 laboratories which are deeply engaged in developing defence technologies covering various fields. The information available on the website is easily navigable. Other information like events, procurements, contact details are few regular features that are updated on regular basis.



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# The National Portal of India: 2010 Milestones

THE National Portal of India, <http://india.gov.in> is an authentic almanac to information and services of the Indian government at all levels from Central Government to State Government to District Administration for the Citizens, Business and Overseas Indians. It is a comprehensive, accurate, reliable and one-stop source of information about India and its various facets both in English and Hindi, which acts as a Gateway to over 6700 Indian government websites. Ever since its launch in 2006, the portal has been striving to make the lives of the common men easy by bringing various services to their desktops.

The National Portal has been serving as an ideal **platform for promotion of government initiatives**. Many of the Government initiatives, like CWG 2010, CGHS Plastic Card Drive, Pulse Polio, Planning Commission's Five year Plan etc. are being regularly featured on the Portal to communicate about latest initiatives taken by the Government of India.

Information on various subjects and themes of national prominence including setting up business in Special Economic Zones, Admissions to Professional Courses based on Online Counseling, Empowerment for the Differently Aabled, Green India - Working towards a better tomorrow etc. were highlighted through the edifying **Spotlight** section in the Portal.

Exclusive **Special Interest Groups** for the Rural Indian, Importers & Exporters have been published on the Portal for the benefit of this community. The Rural Indian section is exclusively designed to give complete information to the villagers of India, not only about the various services, facilities and opportunities available, but also details of how to benefit from them, including a list of Online Services available. Importers & Exporters section provides information to the business community with awareness on topics like Customs Act, Import Procedures, Anti Dumping Guidelines, Incentives and Facilities for Exporters, Important Policies, Regulations and Procedures Governing Foreign Trade etc.

The **National Portal is accessible to all users** irrespective of device in use, technology or ability. All information on this Portal is accessible to people with disabilities. It complies with priority 2 (level AA) of the Web Content Accessibility Guidelines (WCAG) 2.0 laid down by the World



The National Portal of India- [india.gov.in](http://india.gov.in)

Wide Web Consortium (W3C).

The Portal was mandated to develop "standards for presentation of content and visual feel shall be eventually developed and suggested". In view of this, standards to address the issues such as Consistency in navigation, Identity issue, Layout, Content structure, Document formats, Copyright, Privacy, Management policies etc. have been conceptualized and developed as **Guidelines for Indian Government Websites (GIGW)**. These guidelines have been mandated by the government and adopted by Department of Administrative Reforms and Public Grievances. It has also been included in the Central Secretariat Manual of Office Procedures. Initiatives for providing services towards awareness and website development in compliance with GIGW are also being taken up.

In order to **promote exemplary e-Governance initiative** undertaken by Ministries/ Departments/ States, **Web Ratna Awards were instituted** under the ambit of [india.gov.in](http://india.gov.in). Maiden Web Ratna Awards for the year 2009 were conferred to awardees in April 2010.

It now has more than **76,000 registered users**. Since its launch the National Portal has not only serves the end-users or common citizens immensely, but has also gained significant ground when it comes to fulfilling the other basic objectives of electronic governance such as enhancing transparency, increasing efficiency in service delivery and encouraging effective citizen participation in the process of governance.



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## Inauguration of Post offices at Muzaffarnagar, Uttar Pradesh

THROUGH NIC Video link Minister of State for Communication and Information Technology Sh. Sachin Pilot on 20th November 2010 dedicated 5 post offices under the Project Arrow scheme of the Department of Posts to the people of Western UP. These post offices would have uniform brand hierarchy and a single window service system to reduce the waiting time for customers.

The inauguration function was held at the City post office, Muzaffarnagar from where the other four post offices were inaugurated through a NIC video link. The other posts offices are at Dhampur (Bijnore), Behat (Saharanpur), Rampur and J P Nagar (Amroha). Muzaffarnagar MP Sh. Qadir Rana was also present during the inauguration.

Video Conferencing equipments were set up by NIC Muzaffarnagar in a record time of 12 hours. NIC Muzaffarnagar got the special lease line laid by BSNL. Router & modems were arranged from nearest swan center. Video conferencing camera of NIC Muzaffarnagar was interfaced with the communication equipments installed at post office.. Auxiliary camera was attached with VC camera to cover entire function. Extra LCD display unit was attached with VC camera for public viewing. Minister appreciated the video support of NIC district unit. Local print media widely covered the event. Sh. Pankaj Jain,



Hon'ble Minister of State for C&IT Sh. Sachin Pilot inaugurating post offices through video link

DIO/TD NIC-Meerut was also present for support. Muzaffarnagar SWAN team also technically supported the function. Sh. Sanjay Arora, DIO/TD, Bijnore, Sh. Nalin Kaushik, DIO/J P Nagar, Sh. Ravinder Chauhan, DIO/Rampur and Sh. Jagpal Kaushik, DIA/Saharanpur contributed at remote ends to make this event success.

Speaking on the occasion Sh. Pilot assured that the Department of Posts would continue to upgrade other post offices in the in the western Uttar Pradesh. He said a large number of post offices throughout the country are getting transformed under Project Arrow.

He said under the project the post office employees have been sensitised and imparted training in soft skills and information technology. All the upgraded post offices are being equipped with broad band connectivity to provide web-based services of the Department such as e-money order, Western Union money transfer, instant money order and e-post to name a few.

**Gaurav Tyagi**, Muzaffarnagar

## Implementation of e-File in NIC Nagaland



SIO Nagaland addressing through VC on eFile

ALONG with rest of the state in the country, a demo on e-File application under e-Office was organized at NIC Nagaland State Centre, Kohima on 04 November 2010. The DIOs and DIAs of the NIC Nagaland District Centres also participated through video-conferencing.

Sh. Kezungulo Medikhru, SIO, NIC Nagaland addressed the participants and emphasized on the importance of e-File implementation in all NIC Centres of Nagaland. He also encouraged the officers to give due attention to this application as it will be mandatory for all official file movement which is to be done in electronic form only.

This was followed by introduction and demo session led by Sh.T.Y.Sangtam, SSA & Nodal Officer for e-File. The half-day programme came to an end after hands-on session.

**Swedesenuo Natso**, Nagaland

## GIS session at LBSNAA, Mussoorie



Dr. Vandana Sharma, DDG, NIC at the session

A session on Geographic Information System (GIS) Technology had been delivered at Lal Bahadur Shastri National Academy of Administration, Mussoorie by Dr. Vandana Sharma, Head, Remote Sensing and GIS Division, and Deputy Director General, National Informatics Centre, New Delhi recently. This session was scheduled for the Officer Trainees of IAS Professional Course Phase II (2008-2010 Batch).

The contents of the session were Basic Concepts of GIS, Spatial and Non-Spatial Data, Vector and Raster Data Model, Geodetic Datums, Remote Sensing, Geographical Positioning System (GPS), Mobile GIS, 3D GIS, Role of GIS in NeGP and National GIS. The session was followed by on-line demonstration of GIS applications. The session was coordinated by NIC Training Unit, LBNSAA, Mussoorie.

**Mantosh Chakraborty**, Mussoorie

## Launch of e-District - Revenue Services, Government of Tamilnadu

Hon'ble CM of Tamil Nadu Sh. Kalaignar M. Karunanidhi launched the e-District Services for Revenue Department on 15th October 2010. Hon'ble Minister of Transport, Hon'ble MoIT, Govt. of Tamil Nadu, Principal Secretary, Revenue Department, Principal Secretary- IT Department and CEO-TNeGA were present during the launch.

A web based workflow system has been designed and developed by NIC-Tamil Nadu State Centre as part of the e-District project. The system handles the complete work-

flow right from receipt of applications from CSC to final approval of the certificate by the Revenue Divisional Officer (ST certificate), Tahsildar (SC, Deserted Women & Income certificate (above Rs.50000), Zonal Deputy Tahsildar (BC/MBC, No Graduate in the family, Income (less than Rs.50000)). The workflow covers 5 levels namely village, firka, zone, taluk and revenue division.

The web based application will initially be operational in 5 taluks of Krishnagiri District. It will subsequently be extended to five districts, namely Ariyalur, Coimbatore, Nilgiris, Perambalur Tiruvarur. The system provides the citizen the facility to view the status of the application through the website.

**R.Gayatri**, Tamil Nadu



Hon'ble Chief Minister Tamil Nadu K.M Karunadhi launching e-District Revenue System

## Workshop on eMAMTA organized in Punjab



Sh.Gurdev Singh PSA demonstrating MCTS application in the workshop.

FOR effective implementation of Mother and Child Tracking System MCTS under e-Mamta project in Punjab, a workshop-cum-training was organized by National Rural Health Mission Punjab with the support of NIC Punjab from 10 Nov to 12 Nov 2010 in the Conference Hall of Parivar Kalyan Bhawan, Chandigarh. The one day workshop was organized on three consecutive days comprising of District Family and Welfare Officers, District Programme Officer and District Monitoring and Evaluation officer from all the districts. DIOs from all the districts of Punjab with respective NRHM officers, also participated in the workshop. Sh Vikram Jeet Grover TD and Sh.Gurdev Singh PSA from NIC Punjab also attended the workshop.

In his welcome speech, Dr Ashok Nayyar Director Health and Family Welfare, Govt. of Punjab gave introduction to

the MCTS Programme and its importance in delivery of health services. Sh Gulshan Kumar Deputy Director Statistics Directorate of Health Services Govt. of Punjab explained the objectives of MCTS to the participants. He also explained the 80 column format of NRHM for MCTS to the participants.

Sh Satish Chandra, IAS Principal Secretary Health Govt Of Punjab also attended one session in which he interacted with the participants and explained the importance, need and urgency of implementation of MCTS. He also urged the participants to ensure its successful launch in Punjab from 1 Dec 2010.

The workshop was conducted by Sh.Gurdev Singh PSA NIC Punjab where he demonstrated the MCTS application in detail covering the preparation of various masters including common masters including procedure to add villages not available in Census 2011 data and explained the importance of accuracy in creating Masters for correct data entry and reporting. The procedure for online data entry on MCTS application for Pregnant women, temporary migrated pregnant mother and Child registration and immunization was demonstrated in detail. Generation of Work plans and various reports based on different parameters was also shown. The Monitoring and Evaluation Officers were given hands on time on the application for verifying their understanding on the concepts and work flow of the application.

The Question & Answers session was taken up and all the queries were answered jointly by Punjab Health department and NIC.

**Vikram Jeet Grover, Punjab**

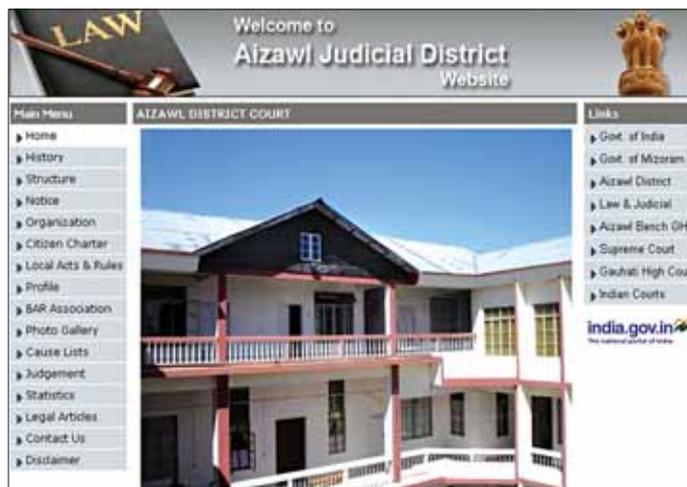
AIZAWL Judicial District website <http://djaizawl.nic.in> was launched on 15th December 2010 by Sh. T. Saikunga MJS, Hon'ble District & Sessions Judge, Aizawl Judicial District-Aizawl. The function was chaired by Smt Lucy Lalrinthari MJS, Hon'ble Addl District & Sessions Judge-I, Aizawl Judicial District.

The occasion paved way for a scope to the much driven e-Governance initiation at the District level for Aizawl District Court.

In his speech by District & Sessions Judge, Aizawl Judicial District, he encouraged all the initiative taken by the NIC and other court staff to bring out this website as a part of e-Court project implemented at Aizawl District Court. He had also advised everyone to take it seriously and work hard to face all the challenges in the initiation taken up towards an e-Governance Mizoram State. He had also ensured to make this website a means to disseminate reliable information and services to the litigant and staff. The website was launched officially with his speech for encouragement and good work to be followed up.

**Lalmachhuani, Mizoram**

## Aizawl Judicial District website for e-Governance



Homepage of Aizawl Judicial District

## Inauguration of Video Conferencing System linking the Courts and Prisons in Kerala



Hon'ble Chief Justice of Kerala, Justice Sh. Jasti Chelameswar inaugurating the system

RECENTLY the state-wide roll out of Video Conferencing link connecting Courts and Prisons in Kerala State was inaugurated at a glittering ceremony in Central Jail, Trivandrum, the State Capital of Kerala. Hon'ble Chief Justice of Kerala, Justice Sh. Jasti Chelameswar inaugurated the system. Two Prisoners of Central Prison were granted extension of their remand by the District Judge online in the presence of the dignitaries. Hon'ble Home Minister of Kerala, Director General of Police, Additional Chief Secretary and Home Secretary Govt. of Kerala and several other dignitaries from various walks of life participated in the function. The technical guidance and the video conferencing equipments were provided by NIC and NICS.

In the first phase, four districts in Kerala (Trivandrum, Kottayam, Ernakulam, and Trichur) have been brought to this network. The remaining ten districts shall also be covered during this fiscal year itself.

Asha Varma, Kerala

## e-Sahooliat launched at District Kathua, J&K

RECENTLY Hon'ble Minister for Revenue, Relief and Rehabilitation, Sh. Raman Bhalla and Minister of State for Information Technology, Dr. Manohar Lal Sharma inaugurated the e-Sahooliat (Single Window System) at Deputy Commissioner's office Kathua in the presence of MLA Kathua Sh. Charanjit Singh, MLC Sh Subash Gupta, DC Kathua, SSP Kathua, ADDC Kathua, ADC Kathua, ACR (R), Kathua, DIO-NIC Kathua and prominent citizens.

Minister said, the Single Window System will facilitate the citizens in issuance of Permanent Resident Certificates, Caste Certificates, Legal Heir Certificates, Fard Intekhab, Income Certificate, Gun Licenses, Voter lists, Dependency Certificate under SRO-43 and other services under one roof without any delay. He asked people to avail the benefits of Single Window System. He further emphasized that with the launch of Single window System, Common man can avail services in an efficient, transparent, convenient, timely and cost effective manner through the use of IT. He also appreciated efforts of NIC Kathua for developing the Single Window Software.

Jit Raj, Jammu & Kashmir



Minister for Revenue Sh. Raman Bhalla and MoS IT, J&K, Dr. Manohar Lal Sharma launching e-Sahooliat

For latest and up-to-date news and information about e-Governance activities across the Country, Visit **News online**  
<http://informatics.nic.in/newsonline>



# US president Interacts with Rural India

Hon'ble US President and Dr. Sam Pitroda, Chairman National Knowledge Commission during Video Conferencing from St. Xaviers College, Mumbai

Edited by **Vivek Verma**

**O**n 7th November' 2010, Hon'ble President of United States, Mr Barack Obama held Video Conferencing from St. Xaviers College, Mumbai with Gram Panchayat, Kanpura, Srinagar Block, District Ajmer. Aimed at knowing the impact of e-Governance services at Panchayat level, he was briefed by Sh. Sachin Pilot, Hon'ble MoS for C&IT

and the event was managed by NIC Rajasthan. As President Obama walked in for the VC session, he was greeted by the villagers who had come in huge numbers and in their colourful best. Dr. Sam Pitroda, Chairman, National Knowledge Commission conducted the show from the other end and also briefed him about the project. Welcoming the President on behalf of Kanpura village, Sh. Pilot informed that the two big things that they were trying to do to bridge the rural divide was to have e-Governance along with rural connectivity. He further added that the agenda of the government was to provide broadband connectivity to all the villages in next 2 years. He continued to inform that as a first of its kind experiment in India, about 17 villages have been connected with fiber connectivity thus bringing government services at their doorsteps, which has been able to transform their lives.

Smt. Indu Gupta, SIO Rajasthan informed that GPNIC has been developed to facilitate the Panchayat offices by providing various online services. Ten Gram Panchayats of



Hon'ble Minister of State for Communication and Information Technology, Sh. Sachin Pilot, Smt. Indu Gupta, SIO Rajasthan, District Collector, Sh. Rajesh Yadav, MLA, Sarpanch and beneficiaries in Video Conferencing Session



Rural Public having a glimpse of the VC with Hon'ble US President



**T**HIS is a Good News, In the US we are trying to do the same things you do. Trying to make government more transparent, trying to make government more accountable, trying to make government more efficient. I want to Congratulate all of you for doing this terrific work. I look forward to watching this terrific experiment continuing to expand throughout India. You will be the model for the countries around the world.

**BARACK OBAMA**  
President of United States



**This is by far the most impressive e-Governance demonstration I have seen, since I have been in the administration.**

**ANEESH CHOPRA**,  
Chief Technology Officer,  
White House, Govt. of US

Srinagar block (Ajmer) were selected on a pilot basis for which BSNL provided the connectivity. NIC took the lead in selecting and providing the software for e-Governance applications especially targeting the Citizen centric services. NIC also developed a portal to facilitate all the services through a single point of contact and provided an email ID to all the ten Panchayats for better communication. Websites were also developed for them thus registering their web presence. A series of capacity building trainings were also organized to familiarize them with the initiative.

**Sh. Shiv Shankar, Panchayat Secretary, Kanpura** mentioned about the convenience that this facility has brought since he is now able to send the faulty Hand Pump complaints easily and government takes immediate actions to repair the hand pump.

**Smt. Sunita Rathore, ANM of Kanpura** said that immunization, ANC, delivery records are now available at Panchayat itself through internet. Previously, she had to go to PHC office, Srinagar for the records which used to take 1-2 hours, and now within 5-10 minutes the records are available in Panchayat itself. With an easy access to information and avail-



Delegation coming out of Panchayat office after demonstration

ability of records, she is now able to effectively implement the health scheme in the area.

An **MBA student, Sh. Vipul Jhanwar** said that with the facility of Internet at Panchayat, it is beneficial for his studies since he is now able to download course materials, take online exams and get the results quickly.

Hon'ble President expressed happiness on the progress of the e-Governance in India. He congratulated and appreciated the importance of doing e-Governance work in rural areas.



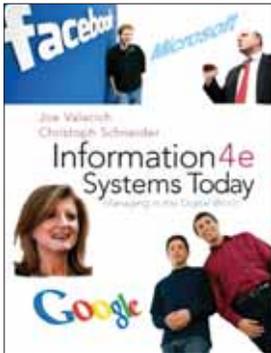
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**Title:** Information Systems Today: Managing the Digital World, 4/E

**Authors:** Joseph Valacich and Christoph Schneider

**Publisher:** Prentice Hall

**Year:** 2010

**Information Systems Today: Managing the Digital World, 4th edition shows how information technology and systems have become important in all aspects of today's organizations and society. The fourth edition of this text has been updated with current and real-world information systems concepts while retaining previous editions' important information. This text book has been written keeping pace with what is happening in the real-world information system.**



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# Information Systems Today: Managing the Digital World

**INFORMATION SYSTEMS TODAY: Managing the Digital World, 4th edition** written by Joseph Valacich and Christoph Schneider is the best endeavor in terms of analyzing contemporary issues regarding Managing in the Digital World; Fueling Globalization through Information Systems; Valuing Information Systems Investments; Managing the Information Systems Infrastructure; Enabling Commerce Using the Internet; Enhancing Collaboration Using Web 2.0; Securing Information Systems; Enhancing Business Intelligence Using Information Systems; Building Organizational Partnerships Using Enterprise Information Systems; Developing and Acquiring Information Systems; Managing Information Systems Ethics and Crime.

There are eleven chapters in the book and deal on different issues of information systems. Initial chapters describe information system issues of real companies and technologies at work. These include:

- InfoSys: India's growing IT consulting firm
- How **TiVo** has changed the television industry, laying the foundation for video on demand and other entertainment services
- **Google's** meteoric rise and the challenges associated with maintaining its success.
- How the Web 2.0 phenomenon **Digg** is influencing news and information dissemination
- **eBay's** use of business intelligence to battle its ongoing struggles with counterfeit products and fraudulent Web sites
- **Amazon.com's** use of its sophisticated infrastructure to automate the supply chain for both large and small customers

- How the **Nintendo Wii** created tremendous demand by purposefully being different than the **Sony Play Station** or **Microsoft X-Box** Chapter -"Enhancing Collaboration Using Web 2.0" examines the evolution of Internet technologies, i.e. blogging, tagging, wikis, podcasting, etc, and how they are enabling new forms of collaboration that include virtual teams, social networking, and crowdsourcing.
- **Net Stats** in this book insights help IS practioners better understand the Internet's role in fueling globalization and transforming the digital world and provide important trends and forecasts related to Internet usage.

**End-of-Chapter Cases of the book** present a case to encourage applying what is learned. These cases include the examples of **Facebook, PayPal, LinkedIn, Crowdcouring**. The automobile industry expanding their supply chains, The FBI developing a comprehensive database of biometric information to better track and apprehend criminals, Terrorists now visiting virtual worlds like Second Life and World of Warcraft to test the reactions of citizens to different types of attacks, and many more.

Coming Attractions feature of the book focuses on innovations that are likely to soon impact organizations or society. Topics include: Brain sensors to improve market research, Virtual extras in animated films and games, Very smart phones and services, High-speed 3-D fabrication, Nanowires and invisibility.

The book is full of definitions whereas little instructions have been given about 'how' to setup, administer, or begin in the digital information management. But the book overall spurs interests in technology compiled at single place.